Industrial Finishing

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From the Editor's Window

JUDGING from a large number of letters that have come to INDUSTRIAL FINISHING recently, wherein individuals and manufacturers in different industries present finishing problems and ask questions about where to obtain specific materials or supplies, and how to do certain kinds of finishing or decorating more economically and satisfactorily, it is apparent that an unusual amount of investigation is being conducted with the idea of improving factory finishing departments. New problems and ideas for improvement are constantly occurring to alert individuals engaged in, or responsible for, production in finishing rooms or paint shops, and as a result more experimenting is going on.

INDUSTRIAL FINISHING has facilities for taking care of these inquiries and problems promptly—and in performing this service the editorial department obtains many interesting suggestions for future editorial assignments. As a matter of fact, most of the articles published in each issue were originally suggested by inquiries previously received in this office. What appears in each issue is carefully planned ahead with the idea of performing maximum service for the greatest number of influential and progressive readers in the several industries served.

With many improvements in industrial finishing departments continually under way, everyone connected with, or responsible for, finishing will want to keep informed about what is being done—and why and how—and what the results are going to be.

It is a real loss to miss a single copy of INDUSTRIAL FINISHING, as that one issue may contain something that will be vitally important to you and your firm now or in the very near future. This year, INDUSTRIAL FINISHING has 50% more readers than last year—15,000 now, whereas previously there were 10,000.

W. H. Rohr

—Managing Editor

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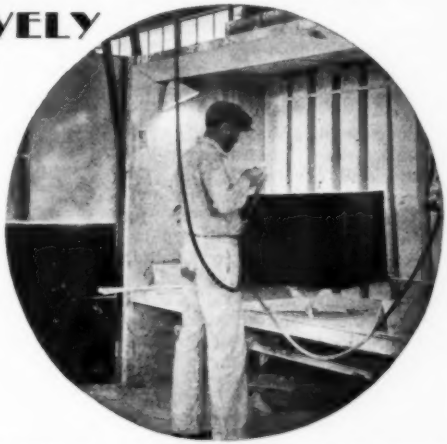
Using the Spray Gun Effectively



Revea'ing practical information about what air pressure to use, the right consistency of material, the care and use of modern spray guns and the importance of cleanliness in connection with spraying.

By Fred Mannhardt

AT FIRST glance the ordinary observer sees spraying as "just spraying"—nothing more—but there are many things connected with a good spray job that only the operator can know and learn from experience. One of these is to always guard against and prevent as nearly as possible the presence of excessive moisture—both in the compressed air and in the room air.

If one is spraying lacquer and the room air is loaded with excessive moisture, he may expect such troubles as blooming or blushing. If excessively moist air is pumped through the compressor and into the tank, it will cause a lot of trouble unless the excess moisture is filtered out before it reaches the spray guns. It is always advisable to place the compressor and tank in a clean, dry place.

Another point: Keep the floor clean (especially of dust) around the spray booth. Oiling the floor will help. Naturally, the suction of air from the exhaust fan will draw more dust and dirt into the booth than one can imagine, especially if the suction apparatus is working properly.

The interior of the spray booth should be clean of any dried enamel or dried finishing material of any kind, as the vibration of the revolving fan often loosens small particles which may drop onto work. A dirty spray booth is a fire hazard and for this reason, if for no other, it should be cleaned regularly.

What Air Pressure

See also that the consistency of the finishing material being used is suitable and in keeping with the proper air pressure. Lacquer and enamels should not be "slammed" on, as this may

cause pits, runs and the like. The thinner the finishing material, the less air pressure is needed (usually) to force it through the gun. No set rules can be laid down for the correct air pressure or proper consistency of finishing material, since obviously one depends more or less upon the other.

Some finishes go on nicely at 45-lbs. pressure; others at 80-lbs., while still others work best at some pressure between these two. I try to keep the pressure for general use between 45 to 60-lbs., and I thin or thicken my finishing material to suit the needs of the occasion. It is a good plan to try out the finishing material first by spraying a board or anything that happens to be handy. When you have it right, then go ahead.

Keep Everything Clean

Another big point; Be sure to keep spray guns clean of any traces of hard lacquer or enamel. Otherwise you may have plenty of trouble—specks of dirt or paint loosening up and going onto the work, a clogged gun, etc. If, after using the spray gun all day, you haven't the time to clean it thoroughly, submerge it overnight in a can of thinner. If lacquer has been used, put the gun in lacquer thinner or stripper. If enamel has been used, either gasoline or lacquer thinner will do. For wiping out spray cups, use a rag with the least possible lint or no lint at all. This rule holds good for all kinds of rags used in the finishing room.

Sometimes, when spraying lacquer, the nozzle of the gun clogs up. Usually there is no need of removing the nozzle or taking the gun apart to remove or clear this clogged place. Just dip a stiff brush (such as a water tool* or bristle) into clean thinner and daub off the nozzle with this just as if you were cleaning pumice stone out of holes with water tool. This method is generally effective and it saves considerable time.

It is also important to regularly inspect the rubber hose through which air is forced into the spray gun. The hose gets dirty inside as well as outside and eventually it becomes rotten on the inside. Examine this hose at regular intervals and, when necessary, replace it with new hose.

Plan Ahead Wisely

Before beginning to spray a new job—particularly if it is a complicated piece of work—figure out first how you are going to go about it. Hang it or lay it inside the booth so you can get a better line on what you are going to do. When you have it figured out, get your finish sprayed on as rapidly and evenly as possible to do a good job. This plan of working will save lots of trouble, too.

There are several types of spray nozzles on the market. Try to have several different kinds always on hand—nozzles with large holes, small holes, fan spray, tinting or whatever your various needs require. When changing material in the gun—for example changing from enamel to lacquer—be sure to clean the gun (and the spray cup if one is used) thoroughly. The combination of the two materials may cause curdling or the formation of little lumps, which will also cause trouble.

Expert Handling of Gun

When commencing to spray, aim the gun away from the work for a second after you've pulled the trigger—this to clear any little lumps that may be lodged

*A small round brush with stiff bristles.

in the nozzle; also to prevent runs. After the gun commences to shoot a satisfactory spray, bring it gradually over to the work. This gives more evenness to the spray-

ing. These are some of the things an experienced operator knows, besides various other experiences he learns from day to day.

One thing more, especially for beginners: *When spraying, always keep your eye on the job.* Sometimes, if you look away for even a second or two, you may ruin a costly job. If you are compelled to give your attention to something else for even a second, stop spraying or aim your gun elsewhere than on the work. Some sprayers have a long slender coil spring attached to the cover of the spray gun, and fastened to the ceiling. This is a great rest for the arm, as the spring supports the weight of the gun and at the same time does not get in one's way. Where an operator is using a gun all day, his arm naturally gets tired and achy and if the gun is suspended in this way he gets quite a relief.

Glazing Liquids

Today, there is much glazing* done on enameled and other kinds of finish. Several kinds of liquid are available for this kind of decorating, some being ready-mixed liquids which are handy and work satisfactorily. In an emergency a glazing liquid can be made as follows:

Flat varnish .....(parts)	4
Boiled linseed oil.....	2
Turpentine	1

Clear flattening oil also works good. Flat varnish colored with oil color and thinned with turpentine is also okay, although a little fast on some kinds of work. The old-fashioned glazing liquid was mixed from one part turpentine, one part benzine, two parts boiled linseed oil and dryer. When using any glazing liquid, be sure and have a smooth well prepared surface, and one that is not absorbent, as any other kind of a surface will give an uneven and unsatisfactory glazing job.—J. K. Cooper.

*Antique shading on painted furniture also called "misting," "smoking," etc.

Naz-Dar Silk Screen Catalog

The Naz-Dar Co., 4014 N. Rockwell St., Chicago, is distributing a new catalog of paints, supplies and equipment for silk-screen stencil process work. It is known as Catalog No. 14.

Mayer & Lowenstein's 85th Annual Meeting

A record made by few men in the Paint and Varnish industry marked the 85th annual meeting of Mayer & Lowenstein, Long Island City, N. Y., on January 8, 1930. President L. H. Abraham celebrated his 60th anniversary with the Company, having started in the position of office boy in 1870. The anniversary was observed by a dinner followed by a theatre party for employes and salesmen.

Chicago Furniture Show Finishes

An expert observer's notes in what's new in furniture woods, designs, finishes and decorations, as used on every type of household furniture exhibited at the 1930 Mid Winter Market in Chicago

By R. G. Meade

TO THE interested observer at the 1930 Mid Winter Market in Chicago it is evident that finish colorings are becoming stabilized. Not standardized as in pre-war days, but resting, as it were, from the kaleidoscopic whirl of the post-war decade, during which practically all case-goods lines shifted first to gaudy polychrome, then successively to sombre Spanish Renaissance, pale French Walnut, followed by a craze for antique shading, then a reaction to fancy veneers, the brief moment of exaggerated Moderne and now—conservatism.

A General Survey

However, the aftermath of premature Moderne has left in its wake, no doubt as a natural sequence, an increased use of fancy woods. Walnut and gum still constitute the backbone of structure but decoration, lacking polychrome, bleaching, hand painting, gilt, decalcomanias, stipple glazing, vein lining, and the like, must fall back on unusual and fancy veneers, and to a minor extent shading and two-toning.

A list of the most commonly employed fancy veneers would include the following: Aspen, curly and burl maple, Thuja wood, Zebra wood, Oriental walnut, Tulip wood, Avoidire, and Aiyous wood, along with the more familiar crotch, African and Beasley mahoganies, ash, Carpathian elm, and crotch, stripe, sliced, butt, and rotary-cut walnuts.

In point of design little of a novel character exists to catch the eye. In the higher priced lines adherence to the conventional French, Georgian and Old English models persist. In the cheaper lines little is to be seen which is traceable either to old forms or to anything strikingly new, although a note of increased grace and less bulk has crept in. For the present, as previously mentioned, Moderne is defunct but that it will revive again there is considerable likelihood—especially if building architecture continues to follow its present trend.

Bedroom Furniture

In the bedroom lines, the richest use of fancy veneers was observed; in many exhibits it reached the point of a certain shining splendor. Light colored woods framed in warm brown walnut and gum, the whole highly polished, give an air of luxury in which the influence of the taste of Hollywood spread through the movies, may very likely be traced.

Since but little shading is employed to unite the various natural colorings of the different woods, it would hardly do to refer to "two-toning" but rather to "poly-

toning." Aspen, of light hue and of a finer grain than ordinary mahogany, is finished to a light brown, as is stripe walnut; harewood is left natural which means a soft gray.

Oriental walnut is stained to a deeper but still soft brown; ash is left natural in a golden tone and lightly shaded, or stained gray. Avoidire is given a reddish tone and satinwood appears largely in a strong reddish brown color. In the cheaper lines walnut and gum tend to a darker brown, much of it accomplished entirely with shading stain in a uniform depth.

Such mahogany as is seen shows a trend toward a straight brown color, without much reddish cast and entirely free from shading. Oak on the other hand, while not widely featured, appears lighter and with considerable use of shading. Both mahogany and oak finishes are finished off dull, whereas walnut and fancy veneer combinations are very largely shown with a medium to a high polish.

Dining Room

Conservatism is probably most noticeable in the dining room lines. Colors run from medium brown to fairly dark and chiefly in straight walnut and gum with less use of fancy veneers. Gone are painted and decorated china cabinets, the black and silver of Moderne, strong shadings and heavy turnings. In short there is little to interest the finisher familiar with the current shade of walnut which is neither light, very dark, reddish or grayish.

Increased use of varnish as against lacquer is noted, which may be due to the demand for higher polished lusters, although not to the same extent as in the bedroom lines. This is significant in view of the fact that lacquer is generally conceded to offer greater advantages for table tops than any older form of finish, but does not seem to offer the desired depth and high sheen when polished.

Living Room

Upholstered furniture this year lacks interest for the finisher because so little of the wood frame shows. Where carved, the frame is finished a light brown with two coats of flat lacquer.

Novelty pieces, desks, tables, humidors and the like, too, have gone conservative, a wide swing from bright enamels, crackle lacquer and oriental decoration. Sombre two-tone walnut with the barest shading dominates these once colorful displays, with occasional variety produced through fancy veneers. This latter is particularly true of radio cabinets.

Breakfast Room and Kitchen

The conservative feeling has likewise spread to breakfast room suites. Many are still shown in frosted lacquer enamel effects with stripe and stencil decorations, but the colors are subdued grays, greens and tans about equally divided with natural oak and walnut, both shaded and decorated in great moderation.

A novelty in refrigerator finishes is provided by the use of wrinkle varnish, the latter applied clear and finished over with light green or light tan lacquer enamel. The effect is a sort of variegated irridescence combined with a durable result because of the necessity for baking the wrinkle finish.

Kitchen cabinets show less frosting but a continuance of shading in modified tones of gray green, tan and ivory. The effects are secured with either stain or

lacquer enamel, the latter thinned considerably to give the stained effect. The use of silk screen stencils gives improved quality to the decorations formerly done with old type one and two-color stencils.

Where is the riot of color associated in recent years with fibre reed furniture? There alone the Moderne design has been retained, but the colorings are comparatively plain and unobstrusive, running to natural varnish and solid enamel tones devoid of the old exaggerated shading.

Wicker and Porch Furniture

One suite showed polished nickel curved framework with black upholstery. Other fabrics used in upholstering show radically modern designs but with wood frames and reedwork in neutral greens, yellows and browns and shaded maple. Finish color combinations featured simple orange and natural green and black and aluminum for painted work without spot patterns or frosting.

Cedar Chests; Metal Furniture

Cedar chests and metal bedroom furniture displays traditionally follow the case-goods lines as to coloring, meaning this year an increased use of fancy veneer effects. Enamel painting is distinctly on the wane in the metal field with shading entirely eliminated in favor of two-tone finishes such as blue and cream, light green and ivory, orchid and light green.

WOOD FINISHING FILLERS

The purpose of wood fillers, how to select and use them and what finishing troubles are traceable to unsuitable fillers and to fillers improperly used

By F. W. Purdon

WOOD FILLER is ground for shipping purposes into a heavy paste form, and before being used it is thinned with gasoline or naphtha, using 12 to 15-lbs. of the paste to one gallon liquid. There are three methods of application—brushing, spraying and dipping. The best results are obtained with the brush application, as brushing on the filler helps to press it into the pores of the wood while the filler is wet.

As soon as the diluent, (gasoline or naphtha) has evaporated from the filler, leaving it in a mealy condition, the surface should be padded across the grain of the wood with a burlap pad until the pores of the wood are completely filled. This is the real essential part of filling. Then the surplus filler should be wiped from the work, leaving a perfectly clean surface—the only filler remaining on the work being that which is packed into the pores of the wood. Great care should be exercised in the cleaning operation. Carvings, mouldings and inside corners should be well picked or brushed out, leaving them clean and free from surface filler.

The purpose of wood filler is to

create a foundation upon which to build a finish with either varnish, lacquer or shellac to stop the absorption of the finishing coat into the pores of the wood; also to bring out the beauty of the wood by making the pores conspicuous. This is done by adding pigment colors to the filler.

Filler may be purchased or ground in many colors; for example, dark brown for walnut, dark red nearly black for mahogany, and many other shades too numerous to mention, for use on oak, etc.—except to say white filler used for silver grays and finishes bordering on that type, of which there are many.

There are two distinct types of wood filler being manufactured today. In the first, linseed oil is used as the binder, silex being the base, with japan for a drier. This type of filler requires 36 to 48 hours air drying, or 24 hours forced or kiln drying.

The 4-Hour Filler

The second type is that which is generally known as a three or four-hour filler. This type of filler has made its appearance on the market within the last year. It is truly a four-hour filler and very good results may be obtained with it. This type filler was created expressly for the lacquer finishers. The base of this filler is also silex, but I do not feel at liberty at this time to divulge the name of the binder or liquids used in it.

The only objection to the new type filler is that on large surfaces it sets or dries so rapidly that it is difficult to clean off at times. It is very useful to speed-up production where small articles are manufactured.

Many of the objections raised against filler are due to unscrupulous methods in manufacturing; adulteration with inferior oils in place of linseed oil and the use of poor or cheap quality pigment colors for coloring, causing fading and bleeding of color with lacquer coats. Filler adulterated or made with oils other than linseed oil, or constructed out of balance, will cause no end of trouble for the concern who is unfortunate enough to use it.

A filler that remains soft or mushy in the pores of the wood is a common source of finishing trouble, and often every other finishing material is condemned unjustly. A filler that case-hardens or surface-dries in the pores should be avoided. It is very essential to have a filler dry completely through.

Filler Shipping Containers

The method of merchandising fillers is chiefly direct from manufacturer to consumer, in bulk—that is in 50 to 100-lb. containers, generally purchased in 500 or 1,000-lb. lots. Also, most paint and glass or hardware stores sell fillers, mainly to accommodate the house painting trade.

Filler must be packed in leak-proof, also air-tight tins or containers. This is very important as the filler, when ground, is made from a perfectly balanced formula. If the containers are not air-tight, the linseed oil rising to the surface or top of the container will skin over. On opening the container for use, this skin cannot be put back into solution, therefore leaving the filler short on oil. Many poor results will be obtained in finishing wood with a short-oil filler.

Practically the whole woodworking industry uses wood fillers,

as filler is indispensable in finishing all porous woods, where a built-up finish is required.

The retail price of filler ranges from 8 to 20 cents per pound. The price is governed by the quality; you generally get what you pay for. The extra cents for a good reliable filler often mean a return in dollars during the finishing process. If one batch of poor filler is received and used in a finishing department, the cost of remedying the damage done would probably offset the extra few cents per pound that a good filler would cost by many hundreds of dollars.

Filler is packed for the hardware or paint store in 1-lb. to 25-lb. tins, and for the factory trade it is packed in 25-lb. to 200-lb. tins. The container must have a large opening at the top so the paste filler may be easily removed. The cover should be of a type that may be replaced so that it will again be air-tight. For shipment to our factory in Paris, France, and London, England, we use 100-lb. and 200-lb. containers. These, after being filled with paste filler, have the tops or openings soldered, making them leak-proof, air-tight containers. To these factories we generally ship in 1,000-lb. lots.

I have no figures on the consumption of wood filler further than our own requirements. When running under normal production, which is 200 desks and tables per day, we use from 200 to 400-lbs. per day. This varies considerably due to the sizes of desks and tables making up our production. Tables for instance range in length from 3 to 16-ft. Desks range from 42 to 72-in., and these are of different types —roll-tops, flat-tops and cabinets.

Compressed Air Society Trade Standards

The fourth edition of the Trade Standards of The Compressed Air Society has just been published, and copies may be had upon application to C. H. Rohrbach, Secretary, 90 West St., New York. Price 50 cents each.

New material in the book includes a new formula for use in air compressor testing, further suggestions in connection with the installation and operation of air compressors, caution against the use of old boilers or tanks as air receivers, suggestions for handling very cold "cooling water" so as to prevent condensation and undue wear on the air cylinders, and another illustration of an air-cleaning device. This book has 47 pages, size 8½x11-in. and is bound in an attractive blue cover.

Attractive Art Calendar Features Aircraft

Berry Bros., Inc. (Mfrs. of finishes), Detroit, Mich., is distributing a remarkably attractive calendar consisting of a cover and twelve 9x15½-in. loose leaves, each month's leaf revealing on a black background a striking picture of a decorative airplane in a unique color scheme, the keynote of which is inspired by a small insert picture of a bird in beautifully colored plumage. Heasup is the artist who painted the original illustrations.

Marietta Establishes Canadian Branch

The Marietta Paint and Color Co., now operating factories at Marietta, Ohio, and High Point, N. C., is sending out an announcement to the Canadian Trade this week concerning the opening of a new branch factory at Toronto, Ontario, Canada.

The Marietta Paint and Color Co., Ltd., will have as its Managing Director, Mr. C. E. Masse, who has been for a number of years engaged in the manufacture of chemicals, paints, etc. in Canada.

Technical Field Service will be in charge of Mr. Racine, of Victoriaville, Quebec, who has for a number of years been in charge of one of the largest finishing departments in the Dominion.

Equipment is now being installed for the manufacture of a full line of Marietta Wood Finishes, and it is estimated that the new factory will be in full operation by March 1st.

Dries in ⅓ the time Saves 30% to 50% Production costs—*not a shellac substitute*

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How Finishes Affect Aircraft Safety

The thin light metal, woods and fabrics, used in aircraft construction are subjected not only to stresses but to the elements which tend to weaken and destroy them; suitable paint coatings afford protection

By Denis O'Brien

SOME FEW years ago, at a staff meeting of a large railroad company's employes the Superintendent of Motive Power said: "We can operate cars without paint." When he made this absurd statement, he was traveling in a wilderness of exaggerated ego.

No automotive vehicle or conveyance of any kind, operating on land or in water or in the air where it is exposed to the elements, can operate very long without paint. Precautionary measures in the selection of protective coatings and their application should be carried to an extreme point in every aircraft shop.

All pigments, vehicles, extenders and thinners should be selected only after they have been severely tested, such tests to embrace elasticity, impermeability, perfect adhesion and durability. The economic features should embrace spreading rate, covering quality, and hiding power.

No other conveyance exists where the integral parts are so much subjected to oxidation or the protective coatings to disintegration as the airplane. These parts, in most instances, are metal or wood and covered with fabricated cloth or thin metal.

When the metal tubing of the fuselage or other metal or wood fittings in the wings or tail surface are covered, they are completely hidden and cannot be seen again until the craft cracks up or is service-shopped for recovering. It is true that some of the tubing can be inspected through the control cable inspection windows, but the amount of tubing that can be inspected through this channel is negligible. Consider these points, and the importance of selection of the best materials asserts itself most emphatically.

Suitable Pigments for Aircraft

The industry has a wide range of pigments to select from. Let

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us divide them into four classes and select by the process of elimination.

The first class includes pigments containing lead; the second class consists of those containing carbon; the third class, those containing organic matter, and the fourth class those containing iron. Of these I contend there is but one class that deserves consideration.

The pigments containing lead are the chromes, green, yellow and orange; red lead and orange mineral and, of course, white lead. Of these, red lead is the only one of this class of any importance for the prime coat. Red lead is a wonderful paint for the priming of steel, but in order to obtain results the red lead should be mixed in proportion of 30-lbs. of lead to the gallon of oil. This mixture would never do for aircraft work, as the weight of material is a factor and no aeronautical engineer would approve of any paint of the above weight.

The second class embraces the blacks. We can dismiss them as a factor because, as primers, they have never stood up under severe tests.

The third class embraces pigments of animal origin and vegetable origin; for priming purposes I consider them valueless, and we can just as well forget them.

The last class containing iron makes the best primers. In fact, they are the only suitable primers for aircraft work; these pigments will contain from 50% to 95% of ferric oxide. We find among them the dull red pigments which are all oxides of iron or oxide of iron toned with some additional color.

In the natural oxides we have an unlimited number of products of various shades, grades and tones to select from. Among these is Spanish oxide which in color is similar to light Venetian red; it contains about 85% of ferric oxide; another is crimson or Persian Gulf oxide which contains from 65% to 70% ferric oxide. Pure Venetian oxide and Indian red will run about or over 95% of ferric oxide.

All of these, and we can include the mineral browns, have been and are at present extensively used in the structural steel industry and in the steel and metal trades.

There is no desire on the part of the writer to create the impression that foreman finishers should mix their own paints. Such procedure would be false economy and should we attempt it, we could not obtain the results we obtain by purchasing ready-mixed paints from reliable manufacturers. The thought in mind is that paints containing ferric oxide can be trusted to stand up under the stress which aircraft parts are subjected to. It is essential that aircraft finishers insist upon paints containing these valuable oxides, and that they keep their shops clean of paints loaded with barytes, silica, China clay and other nostrums of no merit or value in the preservation of metal. A good paint should possess an even suspension of pigment, a heavy precipitation may mean a loaded paint.

As a matter of economy the spray gun should be used for the application of aircraft finishes; spray guns are made today to take care of the viscosity of any paint, so perfect is the atomization. In the event of the paint requiring thinning, it is well to adhere strictly to the particular instructions given by the manufacturer as any deviations from the rules laid down may result in disaster.

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Better Body with Less Sanding

DU-PROS Pure Shellac bodies up better than other first coaters. Its extra body serves the double purpose of filling small pores and adding to the depth of the finish. Because of the extra fine solution in this pure shellac, little sanding is required. Better body and durability, together with easy and dependable working qualities, make Du-Pros Pure Shellac more economical than other sanding-sealing-filling coats.

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Lacquer — Stain — Filler
Sealer — Etc.

Paint Hidden Metal

A number of airplanes are fitted with pontoons; these planes (hydroplanes) take off and land in water. Water, particularly salt water, has a great tendency to cause oxidation or rusting of metal, therefore the importance of using an inhibitive paint cannot be over emphasized.

In the Fairchild airplane plants every piece of metal is painted thoroughly and completely, but to my surprise there are some makes of ships (manufactured in other plants) wherein the inner side of cowling is not painted. Just because the inner side of the cowl is not seen by the public, is no reason why it should be left unpainted.

It is important that the inner side of the cowl be painted. It is not safe practice to depend upon the oil splash of the motor to keep the metal from rusting or trust in the Deity to prevent oxidation. It may so happen that the motor may not splash oil and the Deity may be too busy with other things. Rust prevention is a steel conservation measure, and the safest and most economical way to prevent rust is by covering it with the best inhibitive paints procurable.

The paint used on the metal can also be used on the wood faring. The metal primer should be made long in oil and this will satisfy the requirements of both wood and metal. If varnish is used on the wood, it should be a good gum varnish, preferably spar varnish; shellac is not suitable for this purpose.

Dopeproof paint should be applied to all parts of wood and metal which will come in contact with the doped fabric. The dopeproof paint should never be used as a substitute for paint, its sole purpose is for the protection of other paint materials from the solvent action of dope. The dopeproof properties should be tested by applying dopeproof paint to a section of steel tube, allowing the film to dry four hours and then wrap it with one layer of cotton fabric.

The fabric should be doped with five coats of cellulose acetate or nitrate dope and allowed to dry over night. The doped fabric should be removed and the tube examined; the paint on the tube should show no indication of being affected by the dope.

DeVilbiss Expands on West Coast

Increasing volume of business in Southern California territory is the reason for the establishment of a new and thoroughly complete sales and service branch by The DeVilbiss Co., at 2305 East 8th St., Los Angeles, Calif. Mr. R. J. Burns is manager of the new Los Angeles branch. The DeVilbiss Co. manufactures and sells spray-painting and spray-finishing outfits and equipment for all industries and uses, exhausting equipment, air compressors, and air and fluid hose.

C. W. Hodges of Worthington P. & M. C. Dies

The Worthington Pump & Machinery Corp. announces:

"It is with profound sorrow that we announce the death, on January 17, of Clarence W. Hodges, general purchasing agent of the Worthington Pump and Machinery Corp. Seemingly enjoying the best of health, Mr. Hodges was taken suddenly ill and died at the Paterson (N. J.) Hospital as a result of an operation. He was 53 years old."

Mr. Hodges was born at Randolph, Vt., May 15, 1876, and was graduated from Williams College with the class of 1900. For some years he was employed by the American Locomotive Co. as purchasing agent, and since 1918 he had been employed in the same capacity by this Corporation.

Mr. Hodges is survived by his widow and four sons. Funeral services were held at the West Side Presbyterian Church, Ridgewood, N. J., on January 19, and burial was at Randolph, Vt., on January 20.

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AFTER twenty-five years of research and experimenting, Marietta has developed Super Maco Stain, containing every property hoped for and desired.

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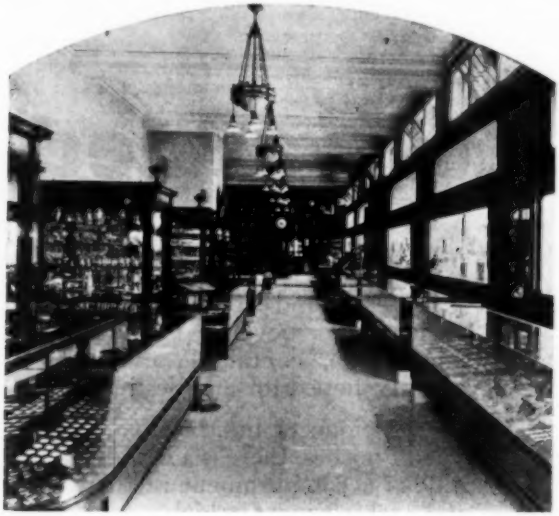

SPECIAL FINISHING JOBS ON LOCATION

What problems the "Finisher Trouble Man" for a store-equipment manufacturer encounters away from the factory, what he carries in his tool kit, and how he handles some of the baffling jobs that are presented

By M. M. Miller

THERE are certain manufacturing plants—such as the makers of store fixtures—which, by the nature of their work, find cases of finishing troubles to come up time and time again *after the goods have been delivered to the customer.* In one organization, one of the largest of its kind in the nation, the troubles have been enough to keep an expert finisher or "Finisher Trouble Man" on the road almost all the time to attend to the complaints and adjustments that arise.

The trouble man must first be a man of great ability who understands all matters of wood finishing thoroughly. He must be able to recognize the nature of any trouble he may encounter and be expert at overcoming it whether it be to apply new coats of stain, shellac, varnish or lacquer; or patching, shading, rubbing, padding, polishing, etc. He must have supervisory ability, for often

WHERE STANDARDIZED FINISHES FAIL

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M&L standard finishing materials are planned to meet every normal requirement of the individual user: Baking enamels . . . clear and colored lacquers . . . varnishes . . . first coaters . . . all of the highest quality in every practical variety.

There are many special cases, however, where NO STANDARDIZED MATERIAL will serve.

For this reason, MAYER & LOEWENSTEIN have developed to unusual extent an INDIVIDUALIZED finishing service. Trained experts are always ready to study your problem at your plant . . . and to create, where needed, a tailor-made finishing material that will fill the requirements.

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he needs to hire men to work for him and these hired men are usually painters, not finishers; he must impart to them what he wants done. With it all, he must have tact in dealing with store executives.

Color-of-Sample Jobs

The causes of trouble are many and varied. All orders for store fixtures are color-of-sample jobs, where the customer definitely okays a sample before work is started in the finishing room. Troubles may arise in the factory if the job is rushed, by the sample not being perfectly matched. Sometimes a customer specifies new fixtures furnished to match an old order. In this case the old fixtures, where exposed to light, may have faded and when rearranged with the new work will not all be uniform in color.

Another trouble that will arise, especially on work that has been rushed, is blooming or blushing in cases where lacquer was used. Also, there may be patching work to repair damage in shipment and there may be the entire refinishing of a present department, desired by a customer, to blend or harmonize with the new work he may be getting.

Whether the trouble man is being sent out on one job or on many, he should try to include in his kit whatever material will help him and save time. He should look up each job and take along the required stain powders, properly marked up for each job, mixed colors, anilines, pumice stone, cleaners, etc. Many of these materials are difficult to procure, especially in small towns. The standard items such as siennas, umbers, Van Dyke browns, alcohol, etc., need not be taken along, as they may be purchased locally.

Removing Lacquer Blush

The correcting of blooming or blushing of lacquer may usually be done by washing with soap or water or by the use of a cleaner, generally known, which is very effective. This cleaner is made up of the following ingredients:

Ivory soap	1½ bars
Beeswax	1-lb.
Debloomed rubbing oil	1-gal.
Pure turpentine	1½-gal.
Oil of Cedar	½-pt.
Oil of Citronella	½-pt.

Put all in a 5 gallon can and agitate with a jet of live steam until everything is dissolved. Then add sufficient hot water to make up five gallons, agitating constantly while mixing. Allow to cool and stir thoroughly before using.

Matching Old Finishes

Where the bloom has gotten deeply into corners, I have found the best procedure is to mix up a little alcohol and aniline stain and daub this into the corners. This colors the whiteness and hides it effectively for good.

Where it is necessary to darken the surface, this may be done by adding color to the lacquer, until by trials the desired shade is obtained, and then brushing this lacquer on over the previous coatings, following with a rubbing operation. There has been considerable experimenting with brushing lacquers but I have seen experts brush on the ordinary gloss or flat lacquer such as is used for spraying, and make a fine job of it. Another way of darkening a finish is to use a colored varnish, or use an aniline stain and alcohol.

The matter of shading from faded work to new work is often encountered, and this must be done so that the old color will

fade into the new color without any definite or preceptible junction point.

The lightening up of work is of a much more intricate problem than the darkening; for instance, the changing of a dark brown mahogany color to a red mahogany. This, it is to be remembered, must be done without removing the finish, which would be an expensive matter. This can often be done by washing the surface to thoroughly clean it, and then, after trials, mix up an aniline solution with sufficient yellow to draw the brown down to the proper red. This coating must not be lacquered over, or the color will be drawn out. The alcohol in the stain will mix with the lacquer already on the surface, and form part of the coating—and will prove to hold up excellently.

The matter of orange peel effects, although much talked about, is practically never encountered, but if it did appear it could be remedied by rubbing down until the peel was eliminated; then the surface should be recoated.

Orange Peel; Refinishing; Patching

Whenever it is necessary to entirely refinish a job, the existing finish can be removed by the use of a varnish remover; or, in emergencies, I have used a preparation made up as follows:

Benzole .....5 gallons
Paraffine wax .....4-lbs.
Mix above with equal parts of alcohol.

Other troubles such as patching require an expert finisher, for this is one of the hardest things to do so well as to escape detection.

All in all, the troubles that arise on the outside are largely the troubles that arise in the shop—only the facilities for correcting them as readily are lacking and it takes a man of skill, ability, and ingenuity to overcome these shortcomings.

Do not ignore nor treat with frivolity or disdain the public's new fancies, for therein may be the destiny and fate of your own position or business.

Flexible Shaft Handbook

The S. S. White Dental Mfg. Co., Industrial Division, (flexible shafts and fittings for all purposes) 152 W. 42nd St., New York City, announces the publication of the "Flexible Shaft Handbook." This book gives engineering data and the various uses and applications of flexible shafts. It contains 119 pages, size 5x7½-in., is printed on coated stock, and attractively bound in flexible leatherette. This handbook will be sent free upon request—on condition that the applicant write on his business letter-head and indicate his position.

Swartwout Co. Merged With Foundry Equipment Co.

Merger of the oven department of the Swartwout Co. (18511 Euclid Ave., Cleveland, Ohio) with the Foundry Equipment Co. (1831 Columbus Rd., N. W., Cleveland, Ohio) has been announced by Charles A. Barnett, president of the Foundry Equipment Co.

For many years the Foundry Equipment Co. has occupied a unique position of being the only concern in the U. S. specializing exclusively in the designing and construction of foundry ovens for baking cores and drying molds. The Swartwout Co. manufactured, in addition to foundry ovens, an extensive line of industrial ovens for paint drying, japanning and processing, and the consolidation forms the largest oven organization in the country.

The Swartwout technical oven staff will be retained and will operate this department as the Swartwout Industrial Oven Division under the direction of Carl F. Mayer, formerly manager of the Swartwout oven department, elected vice-president of the Foundry Equipment Co.

Officers of the company are, Julius Tuteur, chairman; C. A. Barnett, president; O. D. Conover, vice-president; C. F. Mayer, 2nd vice-president; A. V. Cannon, secretary; A. F. Woehrmann, treasurer.

New Variegated Effects in Wood Finishing

Foreman finisher explains how he experimented to discover a satisfactory and economical method of reproducing on wood, a finish similar if not identical in appearance to the color effects on heat-treated, porcelain clock faces

By G. F. Huizenga

SOON AFTER I was placed in charge of the finishing department—my first foremanship—I was asked to reproduce on wood the colored effects of a porcelain clock face, such as is used on the imported breakfast room and kitchen clocks. It was beautifully finished and highly colored with spots and rings of yellow, green, blue and red, and all the intermediate hues.

I hurried over to my finishing "guardian and adviser"—one of the best men in this section of the country—and asked him to give me a start on this difficult job. To my surprise and dismay this is what he said

"Boy, that's too deep for me!"

I went back with my hands in my hair. I asked one of the men to fill a piece of poplar which I handed him, not stating what filler to use. It so happened that he was using a mahogany filler with plenty of color, which later proved its worth; accordingly, he put it on.

Producing Multi-Color Effects

Next day I sprayed on an ivory lacquer enamel; it bled the color in the filler a bit and right here I learned and profited by my mistake of not specifying which filler to use. I promptly had a piece filled with a natural color filler and gave it a primer coat. Since poplar is a close-grained wood, one coat of an easy-sanding sealer coat was enough to fill the pores. After sanding the surface, I applied a coat of ivory lacquer enamel; then, directly on this, I spot shaded with a brush, using oil colors (weak mixtures of the colors as on the porcelain clock) and allowed them to overlap and blend into one another.

This treatment produced the intermediate colors and the thin ring at the outer edge of each color. After allowing sufficient time for drying, I applied a coat of material made up of one half ivory enamel and one half clear lacquer. The clear lacquer bled the oil stains, while the lacquer enamel in the half and half mixture held back the sharp and bright colors but allowed them to bleed just enough to produce that iridescent porcelain effect. A coat of a high-gloss slightly amber-colored clear lacquer was applied, and I had the desired aged-porcelain effect.

Perhaps some finisher will say that the oil stains or colors will rot the lacquer. I have used both naphtha and turpentine to reduce these colors, as the colors must be used weak, especially the red and

Depend upon

MURPHY LACQUER SANDING SEALER

for quality work at low cost

MURPHY Lacquer Sanding Sealer possesses some outstanding features which every user of a sealer should consider.

It is exceptionally easy to sand—in fact, it can be sanded in half the time of shellac.

It is unsurpassed for clarity of tone.

It functions excellently as a builder and filler.

It dries at lacquer speed—quicker than shellac.

It sprays readily without thinning and dries to a smooth, soft, velvety surface.

It may be used as an undercoat for either lacquer or varnish—gloss or flat.

Murphy Lacquer Sanding Sealer is a material that you can depend upon for a good, durable, quality job.

If you want further information, or a demonstration, please write to us.

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blue. I find turpentine blends better and now I use it. For the man who is afraid of the oil rotting his finish, I'll say, "Use dry oil-soluble colors dissolved in V&PM naphtha," which will give a minimum of oil. Spirit colors can be used too, but the effect is lacking in beauty.

I have specimens of this finish that are two years old and they are hard as nails—absolutely no signs of cracking or breaking up—so I think it will stay put. Of course, I do not mean to say oil will not rot lacquer, but as these pieces are not subject to wear or abuse, I find it okay. I do not think it is possible to give set rules or formulas, as probably no two lacquers are identical, and every finisher will have to work out his own way of getting results.

Gilding and Antiquing Picture Frames

Practical finisher explains in detail the treatment involved in producing various bright and antique-gilded finishes on the smoothly moulded and plastic-paint surfaces of modern picture frames.

By J. K. Cooper

THERE ARE various and many ways of gilding picture frames. The best way is to use gold leaf, but this is costly and can be used only on high-grade expensive frames. Next we have the bronze powders which are ground very fine for decorating work of that kind.

The proper way to get a good job is to first coat your frame with a ground coat of paint or lacquer near the color of your bronze, after which you apply your gilt or whatever color bronze it may be. There are various liquids for mixing the bronze; I like the enamel liquid, as it produces a dull satin effect. One may size or coat the frames with shellac; that's a matter of what kind of frame you wish to produce.

Then there is another method; Cover the frame with a prime coat and then apply a coat of Japan gold size containing a little chrome yellow. Care must be taken to avoid letting the size coat get too dry before going ahead with the next operation. Do not coat too much at a time unless there are several finishers working. Prepare a small bag of a fine cloth which, when filled, will permit the gold powder to "dust" through it; then lay the frame on a clean paper and dust the frame all over with this bag of powder, after which the surplus may be brushed off on the paper.

After the gold is on and has dried, you must coat your gold with shellac or lacquer to protect it when antiquing, although if the enamel liquid is used this last coating can be omitted. Every kind and color of bronzes that one may wish is available from the gold leaf—bronzes, reds, greens, blues and many others. These bronzes range in price from $1.50 to $4.50 a pound; in large amounts, of

course, the cost is less per pound. Liquids come at different prices —at $1.75 a gallon for the enamel liquid, and others at $1.50 and $1.00 a gallon. A gallon of bronzing liquid mixed with about 3 or 4-lbs. of bronze powder will cover about 1,000-sq. ft. Spray equipment may be used for putting on the prime coats, the bronze and the antiquing finish.

The antiquing material is a thin glaze color. There are ready-made mixtures, although flat varnish is sometimes used; also there is the wax glaze. The wax glaze comes already colored; just apply, wipe off and rub. For an old gold effect you color the ready-made mixtures or the flat varnish with burnt umber, adding this to your mixture until there is enough color to give depth to your antique effect. This finish may be brushed or sprayed on; after a few minutes it is wiped to remove nearly all of it, leaving enough color in the mouldings to get the aged appearance. Sometimes, to get an old dusty appearance, a smut coat of rottenstone is applied, rubbed into the antique and dusted out. Any color may be used in this same way.

Now, besides the plain picture frames there are several kinds of fancy frames in which various rough textures are found. These can be made with any of the several plastic paints on the market.

The frame is first coated to hold the texture. Then the "plaster" is applied and the various textures worked in. A sponge will make a coarse stipple; a stiff brush will make a fine stipple; a piece of newspaper another kind, and a penholder or round stick will make scrolls. You can also make fancy designs by using stencils.

After the texture paint is dry, it should be lightly sandpapered to knock off the rough edges. Then a coat of shellac is applied if a water-base plastic has been used; if an oil plastic has been used, just apply your gilt, let it dry and then antique as you do when finishing plain frames.

A few color combinations suitable for use over gold bronze are: orange, brown and light chrome green. The smut coat of rottenstone can be used here also. The color combinations and different textures that can be used are practically unlimited.

Du Pont Maintenance Painting Book

The sixth edition of the book "Principles and Practices of Up-Keep Painting" has been published by the Paint and Varnish Division of E. I. Du Pont de Nemours & Co. The new and enlarged edition comprises 270 pages, bound in Fabrikoid, and covers all phases of maintenance and up-keep painting.

This book is intended as a permanent guide to a painting program for the use of plant superintendents, engineers and plant executives. The book is distributed by the Prescription Paint Service of the Du Pont Co., with headquarters in the Public Ledger Building, Philadelphia, Pa. The price is $2.00, to help cover the expense of publication.

Hercules Shows Increased Profits

Showing a substantial gain in receipts and net profits and maintaining a strong financial position, the Hercules Powder Co. continued to expand both its domestic and export business last year, according to the company's annual report just issued. Net profits for the period were $4,358,904.38 as compared to $4,038,-980.67 for 1928. This represents earnings of $5.95 per share on the 598,000 shares of stock after payment of preferred dividends as compared with $5.51 per share on 588,000 shares outstanding in 1928. Regular dividends of $3.00 and an extra dividend of $1.00 were paid during the year, representing an increase of $.50 per share over dividends for the previous year.

How Much Time to Finish

Foreman Finisher of the Period Cabinet Mfg. Co., New Albany, Ind., answers this question in detail, and incidentally explains the process used to obtain the highlights and shadows in fancy fronts of butt walnut

By B. T. De Courcey

I WAS ALMOST persuaded to not use the term "good furniture"; the adjective good is so comparative, yet it is a term that has been so closely associated with the furniture industry that it has come to have a meaning all its own.

No matter how well furniture is designed, how excellent the machine work is, or how beautiful the figured woods in it may be, the finish determines the final appearance. I shall not go into details regarding the quality of finishing materials. I order what I believe to be the best quality materials in their respective lines, and those products which by past performance have proved best suited to our particular needs.

I believe in using modern finishing room equipment wherever and whenever the work to be done is adapted to this equipment, but I am not a fanatic on the subject. I still believe you cannot go fox hunting in the latest sport model, irrespective of what make car it is, and in like manner I believe that hand work and an old fashioned brushing tool are better adapted to some finishing operations than any of the equipment on the market today. Of course, the time element enters largely into the argument against hand work, yet I am convinced that it has its place and it is worth the price. To give you an idea of the scope of our work, we are finishing from 450 to 500 complete dining suites per month using five spray booths.

Finishing the Buffet

Selecting the walnut buffet shown on the opposite page for a specimen, I shall describe the various steps in the finishing process, giving the time allowed for each operation, the method used and, in some cases, the reason for using the particular method described.

It will be noticed that the gum posts are full length, reaching from the buffet top to the floor, hence we stain and shellac the posts before assembly. Following the machine work and sanding, the

Time is Required Good Furniture

posts are brought to the finishing room on trucks where they are dipped in a light brown water stain. The time on this operation is 23 minutes per 100 posts, or approximately 1½ minutes for the six posts on the buffet. After the stain dries we spray a sealer coat of shellac, which requires 40 minutes per 100 posts, or about 2½ minutes for a set of six posts.

When the sealer coat has dried sufficiently, the posts are returned to the cabinet shop and the case is assembled. Doors and drawers are fitted and the whole buffet is delivered to the finishing room with the doors and drawers numbered and sent loose.

Our first operation, after the buffet is assembled, and delivered to the finishing room, is to brush the doors and drawer fronts with a light orange-yellow water stain —this to prevent the natural green of the butt walnut from showing through in the final finish. Time required for this operation is 2¼ minutes for two drawers and two doors. We allow this stain coat to dry for an hour and then brush a clear bleaching lacquer on the butt walnut surface inside the small half-round moulding, which is planted on the surface of doors and drawer fronts.

This treatment leaves the surface outside the moulding darker in color and obviates a two-toning operation on the doors and the drawer fronts (see the effect more clearly on the china cabinet). I have found that brushing this bleaching lacquer gives better results; the lacquer is worked into the pores of the butt walnut and we are not obligated to mask the outer border to prevent it from being bleached.

The surface on which the bleaching lacquer has been brushed presents about the same appearance that a wash coat of shellac would produce excepting, of course, it is lighter in color. This brushing operation requires 2½ minutes for two doors and two drawers.

The bleaching lacquer coat is allowed to dry from one to 1½ hours. Then the doors and drawer fronts are given a spray coat of shellac. The time allowed for two doors and two drawers being 2½ minutes.

Next the buffet (without doors

and drawers) is given a spray coat of walnut water stain and the posts, which you will remember were partially finished before assembly, are thoroughly wiped clean of this stain coat. The time allowance on this spray operation is nine minutes for one man, which includes wiping the stain off of six posts. The case is allowed to dry four hours. Then a wash coat of shellac is sprayed on. This shellac is run very thin, four gallons of denatured alcohol to one gallon of shellac. Time for wash coating is seven minutes for a spray operator and a helper.

After drying about half an hour the case, two doors and two drawers are sanded with No. 5/0 sandpaper, the time allowance for one man being 26 minutes. From this point the doors, drawers and case receive identical finishing treatment with the exception of highlighting, so when I mention the case, the reader will understand that doors and drawers are included.

Filling; Cleaning Off

The case is then filled by hand. We are using two mixtures of filler. On gum wood parts, we use 8-lbs. of filler to one gallon of naphtha, and on walnut veneered stock, 14-lbs. of filler to one gallon of naphtha. These mixtures are giving excellent results on both the close-grained gum and the more open-grained porous walnut; they work especially well on the end-grain wood of the butt walnut fronts. In cleaning off filler, tow is used, rubbing across the grain of the walnut, while sea grass, which is less expensive, is used to clean the gum parts. Filling and cleaning require 34 minutes for two men.

Highlighting

After standing 24 hours the next operation on the case (omitting the doors and drawers) is highlighting, which is done in the spray booth. This is done with an oil stain which is applied on the exposed edges of the top and bottom rail and the posts. Stain is immediately wiped off the turnings and the highest surfaces of the post fluting, leaving the dark stain in the grooves. Time allowance on highlighting, including the wiping operation, is 18 minutes for one man.

The case is then allowed to dry 24 hours, after which the back and inside the case are sprayed with a substitute lacquer; time on this spray operation is four minutes.

Lacquering; Rubbing; Completion

The case is now ready for the gloss lacquer coat which is applied by the spray and allowed to stand 24 hours, when a second coat of gloss lacquer is sprayed on. The time allowance on each of these spraying operations is 4½ minutes, or nine minutes for two men on these final lacquer coats.

After drying 24 hours the case is moved to the rubbing room and rubbed with pumice and oil. A stroke rubbing machine is used on all tops, and air-driven portable rubbing machines are used on fronts and end panels. Burlap is used to rub the posts, the pumice and oil being rubbed in the grooves with a stiff bristle brush.

Cases are then inspected and trimmed. A little rottenstone is sprinkled on the top and the entire case is then waxed and polished.

It may be seen from this schedule that approximately two hours are consumed in actual finishing

operations on the buffet, with proportionate time on the other pieces completing this suite.

The time element is as elusive and as comparative as the adjective "good," but with this schedule I am obtaining excellent results and upholding my belief that good furniture deserves a high-grade finish.

Grained Finishes For Air Drying

There is now a new air-dry system which enables us to put on a grain finish within three hours from the start. The composition assures the user of no lifting or crawling trouble, lacquer top coats having no affect on it. This has all been made possible with a quick air-drying graining stain.

The first application is a coat of lacquer graining ground; it dries quickly and consequently picks up no dirt, this leaves an ideal surface for graining.

Then the surface is grained with the new air-dry graining stain which comes in paste form, the same consistency as the oil graining stain. It is reduced with water and will dry in about 30 minutes. It can be retarded to any length of time by adding a special retarder. The stain may be force dried for ten minutes at a temperature of 150°F. Then one or two coats of clear lacquer are applied.

To show the time it takes to apply this finish, let it be supposed that a filing cabinet is to be finished: A coat of lacquer ground is applied; this should take about two minutes. It is then left to dry for one half hour. The graining ground is brushed on and grained; this bakes about 20 minutes. It can be force dried for ten minutes at 150°F. or air dried for one hour.

Two coats of clear lacquer are then applied, allowing one half hour between coats and four minutes for spraying time. The finish should be completed in about 1½ hours.—Joseph M. Verderosa.

"The Power of A Proper Finish"

Zeller Lacquer Mfg. Co., 342 Madison Ave., New York City, has sent out to the trade a novel envelope-folder, illustrated and in color, calling attention to the policy of "a special lacquer for each requirement." Samples of Zellac will be sent upon receipt of information for its intended use.

Yarnall Paint Co's. New President

Walter P. Yarnall, son of David G. Yarnall, has succeeded his father as President of the Yarnall Paint Co., Grays Ave., West of 54th St., Philadelphia, Pa. Walter P. Yarnall has been associated with the Yarnall Paint Co., for more than seven years and has had experience in every department of the business.

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For All Defects in Wood

Manufacturers in all wood-using industries find SAN-ITAI-RIE FILLER unsurpassed in filling cracks, worm holes, knot holes, open joints, dents, pitch pockets, etc., and through its use are able to send out their products without a flaw.

Put up in friction top cans—half pints to gallons—in 20 different colors. Send for sample can.

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Colors Ground in Lacquer

Consulting Chemist, analyst and engineer calls attention to lacquer color matching problems which confront finishers and refinishers, and suggests means whereby special tints, hues and shades can be prepared economically

By J. C. Hertstein, Jr.

THE SUBJECT of grinding lacquer colors in a thick gum or lacquer solution, which can be sold in somewhat the same manner as colors in oil or japan, has been gone into thoroughly by several manufacturers of lacquers and lacquer enamels—and in one instance the idea has been tried out. Put up in small containers, this material would seem to have a large prospective sale, especially where only a very small amount of lacquer enamel is required, but it seems there are too many disadvantages connected with its use to warrant any lacquer producer to put up and sell colors in this way.

Let me cite the following illustration: An automobile painter in a refinishing shop may require about ¼ pint of a certain tint, hue or shade of lacquer enamel to match up a spot where the finish has been damaged or has come off. He cannot purchase ¼ pint of this particular lacquer enamel from any lacquer manufacturer, not even if the manufacturer has the exact color in stock. The manufacturer cannot make a practice of selling industrial goods in such small quantities.

On the other hand, a lacquer manufacturer cannot profitably match up a special color in a quantity of less than five gallons. Therefore it can be readily seen that the only way left is for the painter to carry a sufficient stock of gallon cans of many colors or shades and, by inter-mixing these together, obtain the tint, hue or shade he desires.

Can of "Color in Paste"

If the finisher were able to obtain ground lacquer colors in a thick paste, he could afford to stock one or two quarts each of several tints, hues and shades. He would not have to buy the same number of gallon cans of either finished color enamels or of the clear lacquer. Furthermore, he could purchase a clear lacquer made for the purpose of being used as a vehicle with which to mix the thick color pastes and, by buying this in 5 gallon lots or drum lots, he could enjoy quite a saving in price provided a premium were not asked for the colors in lacquer. In this way, he could mix all of his special colors to order as he needed them, without waiting for shipments of special colors from the manufacturer.

However, it has been found that this method, while it appears to be a splendid manner of working out the color problem, has enough

More Durable Lacquers with Rezyls

Lacquers formulated with Rezyls have the easy application and quick drying characteristics typical of most lacquers; but, in addition, Rezyl-formulated lacquers have exceptional Durability and Color Permanence resulting from Rezyls themselves.

For example: Rezyl 12, unaffected by ultra-violet light, lengthens film life and prevents chalking and cracking. Nitrocellulose requirements are reduced. And the resulting lacquer is entirely suitable for exterior use on wood and metal.

Every lacquer user should have full information on the successful lacquer ingredients produced synthetically under our supervision. Use the coupon for data on Rezyls, Balsams, Teglac (for furniture and interior use), and Ethyl Lactate (a high-boiling solvent of unusual merit).

Industrial Chemicals Division

American Cyanamid Company

535 Fifth Avenue New York

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535 Fifth Avenue, New York
I am interested in Lacquers containing Teglac or Rezyls for use in the applications checked.

My Lacquer supplier is .....

( ) Furniture	( ) Clear
( ) Industrial	( ) Pigmented
( ) Textile	( ) Wood
( ) Automotive	( ) Metal

Name .....

Address .....

Mark for attention of.....

dangers to make reliable manufacturers hesitate about going into this business.

Mixing Brands

First of all, if the lacquer manufacturer could be positively certain that the user would mix only one brand or make of colors with the same manufacturer's clear lacquer in exactly the specified proportions—a schedule of proportions to be supplied by the lacquer manufacturer—he might take the chance. But it seems that in the past, when a few painters and users found that they could use different thinners with different brands of lacquers, this idea of not inter-mixing various manufacturers goods fell through and was considered "the bunk." And because many finishers succeeded in obtaining satisfactory results with the use of different thinners and lacquers, they thought the lacquer manufacturer was merely "telling them something" in order to sell his goods.

Because of this apparent success in accomplishing something that was said to be impossible, some of the finishers and refinishers feel that their knowledge excels that of the lacquer chemist. And it is this condition that makes certain lacquer manufacturers hesitate to sell ground colors to be mixed with clear lacquers of the same make.

Following Directions

Then again there are other dangers. The user may not follow the directions carefully or strictly. He may believe those directions are just mere "talk" and, preferring to rely more upon that superior intellect of his, he may use more pigment than the formula calls for—and in consequence obtain a finish that will chalk off; of course, he will then blame the manufacturer of the lacquer color and lacquer thinner.

It would seem that if the absolute confidence of every user of such materials could be had, the plan could be worked out very successfully. An educational campaign would be beneficial in working out a thing of this sort. I am interested in this field of possibility. Perhaps one or more manufacturers have devised and placed in operation a satisfactory solution for this particular problem. If so, I feel sure many finishers and refinishers will be very much interested in obtaining complete information about it.

A New Name In The Polish Field

A new name and already FAMOUS. LANDRO-SUMMERS, in Michigan's leading auto and furniture plants has proven its way to high favor BECAUSE: It cuts faster, it is non-blooming, it does not separate, it gives perfect lustre, cleaning, waxing and polishing in one operation. L-S Hand Rubbing Compound and Polish for all Lacquer, Enamel and Varnish finishes.

A trial will convince and prove its merit *for you.*

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Off with the Old, on with the NEW . . . Finish!

Many an American product of merit familiar to the public 15 or 20 years ago is still sold today, improved only with the durability and beauty of finish obtained with Zellac lacquer and lacquer enamels.

The significant point is this: Zellac, whether on new or old products, makes them distinctly modern with the latest types of finish and color combinations, increasing their salability.

We are helping our customers to hold positions of leadership with Zeller-made lacquers and lacquer enamels, in both our standardized Zellac grades and our grades specifically formulated to fit any special finishing requirement. Whenever the *old* is abandoned—whenever the *new* in beauty, color, durability and economy is needed—Zellac lacquers and lacquer enamels will help to place you first in sales.

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ZELLAC
FOR EVERY INDUSTRIAL PURPOSE

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PORTLAND SEATTLE

How to Use Brushing Lacquer Effectively

Revealing some of the technique in brushing lacquer successfully, what type of brush to use, how to maintain the correct consistency in spite of evaporation, and how to smooth out uneven places

By C. Dan Youngs

MANY CUSTOM finishers who still use the hand brush method of application for finishing would find it easy to speed up their work if they used brushing lacquers. Among the old-time users of the hand brush, however, there seems to be a wide-spread fear of brushing lacquer and a belief that it cannot be successfully used in modern shop production.

Of course, it is true that lacquers cannot be brushed on and laid out in the same manner as enamels or varnish, due to the more rapid setting of the nitrocellulose product.

The same care in the preparation of surfaces is essential when using brushing lacquer as in the case of enamels or, in fact, in the case of any finishing materials. The surface must be clean, dry, free from grease or oil, and smooth. In some cases, notably that of hardwoods, it is necessary to apply a priming coat, usually an oil-base product which, after it has dried, must also be sanded to a smooth surface.

Type of Brush to Use

The type of brush to use differs materially from those used in old-style finishing; it must be a glue-set brush because nitrocellulose will soften a rubber-set brush and cause the bristles to fall out. An oval brush is much better than a flat one, as it will carry more material and less time is spent in dipping it into the lacquer.

Lacquer must be brushed rapidly and worked lightly, or an uneven surface will be the result. It is impossible to go back and touch up missed places, therefore great care must be used to cover all surface thoroughly with the brush at the first application.

Leveling Wrinkled Surfaces

Raised surfaces, where the lacquer has wrinkled, can be either smoothed out with a brush dipped in the reducer, or they can be sanded down before applying the following coat. Light colored or tinted lacquer requires about the same number of coats as an oil-base enamel or color varnish, but if the surface underneath is properly prepared, one coat less can be used in the darker colors.

Lacquer's great merit in industrial finishing is the fact that several coats can be applied the same day, thus speeding up production. Also, due to its rapid setting up, there is much less danger of dust or dirt settling on the surface; it will become dust free in about five minutes, and hard enough to handle in less than 30 minutes.

Dryness; Evaporation

This apparent dryness, however, must not be mistaken for the fact that the lacquered surface is then ready for another coat. After the lacquer has surface-hardened, certain changes still take place and the application of the second coat too soon will cause the first or preceding coat to soften and pull up. It is well to wait at least an hour for a following coat after the first one has been applied.

Where brushing lacquer is used from an open can, there is bound to be some evaporation of the volatile solvents; this causes the remaining lacquer to body up and thicken. For this reason it is necessary to have lacquer thinner on hand to keep the material reduced to the proper brushing consistency. When thinners are added they should be thoroughly stirred into the lacquer.

If the head of a finishing department is considering the use of a brushing lacquer because of the fact that it is, for some reason, impractical to spray and where quick-drying is a requisite, it is well for the men who are to apply it to experiment for a short time until they have acquired the knack of handling it effectively.

There is nothing secret or difficult about the use of brushing lacquer; it is simply another method of finishing which requires a different treatment—just as shellac is not brushed in the same manner as enamels. Confidence and practice are essential and one must remember that it requires quick, light, fast brushing. With this in mind there should be no major difficulties encountered in the use of the modern brushing lacquers.

Automatic operations contribute to cost cutting.

The Southern California Edison Co., proposes to sell 100,000 electric ranges in the next five years.

Du Pont Paper on Color Testing

The proofs of the article "Emulating the Rainbow" by Mr. D. V. Gregory, Central Testing Laboratory, as published in the Du Pont Magazine, have been distributed by the Du Pont Publicity Bureau. This two page paper, page size 8½x11-in. describes the use of special scientific instruments in the Du Pont laboratories to test colors and color value.

Spray Gun Artist

According to Paasche Airbrush Co., 1921 Diversey Parkway, Chicago, Ill., Mr. Axel Wallentine, Foreman Finisher, at the Scanlan-Morris Co., Madison, Wis., airbrush painted the picture from which the accompanying cut was made. He did the work

entirely free hand with a Paasche airbrush. Many finishers will be amazed to learn that such splendid free hand work can be done with an airbrush. This drawing not only shows the versatile ability of Mr. Wallentine, but indicates the unlimited possibility of the airbrush.

New Materials and Equipment

Presenting briefly, certain outstanding features of new materials and improved equipment which have been developed for use in modern industrial finishing departments

De Vilbiss Spray Painting Outfit

A new spray-painting outfit created by The DeVilbiss Co. provides in one compact, easily portable unit of ultra-modern design, efficient equipment for all light duty work in shop and factory. According to the company's press story:

"The light weight and compact size of this outfit give it a truly universal utility. It occupies no more space than an electric chafing dish. The specially designed air compressor and 1/5-h.p. universal electric motor which drives it, weigh but 5¼-lbs. The spray gun weighs only 1¼-lbs., and does not tire the operator's arm even with long-continued use.

"The spray-painting outfit embodies specific features which give it great capacity and efficiency. The high air pressure produced by the powerful little motor and the advanced design of the pressure-feed spray gun produce a complete, fine atomization of the material and assure the superior results achieved by big capacity outfits. Easy adjustment of the air cap of the gun enables the operator to atomize perfectly any of the various paints, lacquers or material that may be in use.

"Two air caps give a choice of round spray or a full fan spray several inches wide. The atomizing efficiency of this spray gun makes it possible to use practically any kind of painting or finishing material. It will also spray insecticides and disinfectants effectively. The pint size glass container has standard Mason jar thread. Ordinary Mason jars can be used for extra containers.

"The gun body and compressor housing are of high-grade aluminum alloy. Nozzle caps, fluid tip, valves and other parts are of brass, nickel-plated and nicely finished. The outfit comes complete, ready to use—just plug it

Light spray painting outfit Type NA.

ADVERTISING PAGES REMOVED

into any 110-volt electric socket. Consists of the DeVilbiss Type GT spray gun, rotary compressor with switch, 15-ft. of air hose, and connections, 10-ft. extension cord and plug, and brass wire for cleaning."

Interior Pontoon Coating By Glidden

By emulsifying, through a special process, asphalt and water, The Glidden Co. has produced a practical durable pure asphalt coating for the interior of pontoons (Glidair No. 12 Interior Pontoon Coating).

When naphtha is used as a reducer with asphalt, there is a combining of the natural asphaltic oils and the volatile naphtha. Evaporation carries off the naphtha fumes and it also carries away asphaltic oils, leaving a more or less brittle film.

On the other hand this Glidair product, being emulsified with water, does not carry off any asphaltic oils when the water evaporation takes place. This evaporation of the water leaves only a pure asphalt coating with all its desirable elasticity and durability.

Once the water evaporates the asphalt particles coalesce or flow together, forming a waterproof coating unaffected by any moisture.

Hobart Spray Outfit

Hobart Bros. of Troy, Ohio, have brought out a new portable paint-spray outfit which is designated as "HB No. 136."

Specifications include the following data:

Electric Motor: ½-h.p.; 1750-r. p.m.; ball bearing.

(Continued on page 93)

96 GLOSS 97 RUBBED EFFECT Amerilac Lacquers

Amerilac No. 96 Gloss and No. 97 Rubbed Effect Lacquers, standard with many manufacturers of high-grade furniture and cabinet work, will also help you in building sales for 1930. The beauty imparted to cabinet work presents an irresistible sales appeal.

Records of substantial reductions in finishing costs are available wherever Amerilac Lacquers are used, because these materials are easily applied, give greater coverage and require less sanding. By actual experience, they have proven to be the proper materials for modern requirements in finishing. Such savings in your finishing department will mean added profits.

Easily Applied
Smooth Flowing
Quick Drying
Require Little Sanding

Amerilac Lacquers have been developed through close association with manufacturers of high-grade furniture, and an intimate knowledge of their requirements.

Try Amerilac Nos. 96 and 97, and be convinced. Your Inquiries Solicited.

The American Varnish Co.

High Grade Varnishes, Pyroxylin Finishes, Stains, Fillers and Enamels

1138-1146 N. Branch St., Chicago

Custom Shop Finishing in Furniture

Custom finishing shop, employing modern spray equipment, specializes in finishing and decorating furniture in the white, which a local store receives in knock-down form, assembles and delivers to the finisher

By Jos. C. Coyle

THE GROWING flair for dainty lacquered breakfast sets and other articles of furniture finished in the same manner—all of which are finding prominence in most furniture stores now—provides many openings for the expert finisher with small capital. Finishing this type of furniture for some of the larger furniture stores of a city will provide fairly steady work, and the equipment need not be elaborate. The store delivers the furniture—which it receives knocked down in carload lots, and then assembles in its own shop—by large truck loads to the finisher, and hauls it away when finished.

A typical shop of this kind is the J. C. Loyd paint shop in Denver, Colo., finishing for the Peck & Hills Furniture Co., one of the largest in the city. While the equipment in this shop is quite simple, it is at the same time efficient. Many different articles of furniture are finished here, but the principal activity consists of lacquering breakfast sets in colors. Practically everything is sprayed, a small type of spray gun being used even in the decorating.

Two spray booths, one 6 x 8-ft. and one 5-ft. square, are located at the back of the shop, with high-speed electric fans drawing the fumes out through an 18-in. square opening in the back of the larger booth; the fan in the smaller booth draws exhaust into the back end of the larger booth when both are being used.

Fresh air enters the building through transom windows at the front during winter, and in summer the large sliding doors are thrown open. But even in cold weather, when the doors are closed, the air is remarkably clear throughout the establishment—except on rare occasions when an extra large piece of furniture that cannot be finished in the booth, is received. Even the spray gun operator, standing in the front of the booth, never needs to wear a

PENTEXEL

FOR LACQUERS of EXCELLENCE

In nearly everything we buy or use we have become accustomed to look for quality We want to know what can be expected from it, and how it compares in quality and price with similar merchandise.

PENTEXEL—made and sold by The Sharples Solvents Corporation as the means of producing higher quality lacquers at lower cost—welcomes every test and every comparison to which you can subject it. Its outstanding features establish it as the one product which possesses every desirable solvent qualification for the production of high quality lacquers:

(1)—Excellent cotton solvent power.
(2)—A solvent for all gums in lacquer formulation (There has never previously been a solvent possessing both of these qualities to such a marked degree).
(3)—Superior blush resistance.
(4)—It reduces the production cost of lacquer
(5)—It is unexcelled as a flowing agent
(6)—It is chemically stable.
(7)—It can be used with all pigments.

The SHARPLES SOLVENTS *Corp.*

2304 WESTMORELAND STREET, PHILADELPHIA
548B RAILWAY EXCHANGE BUILDING, CHICAGO
501 A FIFTH AVENUE, NEW YORK

respirator. Plenty of speed to the fan turns the trick, according to Mr. Loyd. Two compressors are used as needed, and reducers are provided to cut the pressure to 40-lbs., at which the spraying is usually done.

The articles or pieces are placed, one at a time, upon a simple wooden turntable (3½-ft. in diameter) just inside the front of the booth and 18-in. above floor level. As the gun is used with one hand the operator holds the piece with the other and spins the table with his knee. After applying the oil undercoat, the pieces are set aside and allowed to dry for a day. Another undercoat is then applied and allowed to dry another 24 hours, after which the pieces are placed upon a low padded table on the floor and thoroughly sanded by hand. Two coats of lacquer or enamel are then applied in the booth, each one drying for a suitable length of time.

Decorative Effects

The furniture is now ready for decorating. Lacquer in colors that harmonize with the general color of the piece, is applied with the small decorating gun, the finisher using patterns and stencils cut from cardboard for outlining. Only when a very narrow stripe is desired is a hand brush brought into play.

The careful selection of colors that harmonize—for example blue decorations on ivory, black on red, etc., and, in the case of broad bands, the more or less uneven edges—effect a blending of colors that is even more pleasing to the eye than the sharply defined outlines of hand brush work. Thus an attractive finish is achieved along with speed in production.

Some cabinets, chairs and other pieces of furniture are finished in clear lacquer or varnish, usually with a velvet final coat. When this finish is used, one coat of stain is first applied and let dry overnight. This is followed by a coat of shellac, thinned down for use in the spray gun. Then the articles are placed on the padded tables previously mentioned, and sanded. Next a gloss coat is sprayed on, and, when that is dry, the final coat of varnish or lacquer is applied.

A long bench at one side of the shop is used to set chairs on to dry, and tables are placed on the floor beneath it.

During occasional slack periods the proprietor solicits finishing and refinishing jobs from private homes.

Partitions can be used to advantage in most plants. When used effectively, they simplify production lines and form definite divisions in operations.

James B. Day & Co. Branch Warehouses

James B. Day & Co., Chicago, announces the carrying of warehouse stocks at High Point, N. C., and Indianapolis, Ind. The Company's representatives are J. M. Thomas at High Point, and Harry Demler at Indianapolis.

Liquafill Mfg. Co. Succeeds Bocel Co.

The Liquafill Mfg. Co., (Mfr. of Liquafill finishing material and Glue-Rite sizes for weather-proofing of wood and curing of veneers) 222 Kenilworth Ave., Dayton, Ohio, announces: "We are successors to the Bocel Co. of this city. The entire Bocel Co., capital stock, patents, etc., have been transferred to Mr. Frank V. Tischer, inventor of the products and now President of the Liquafill Mfg. Co."

Constant Uniformity by Agitating Materials *this Way!*

OLD Faithful, Jr., is designed for fast and thorough agitating of liquids, dissolving of solids, or mixing dry powders. Widely used to assure uniform mix in paints, pigmented lacquers or other finishing materials. A twin unit handling containers of any shape ranging from 3 in. to 30 in. in height and from 6 in. to 24 in. in width . . . both chucks and yokes are universal. Automatically tumbles containers end over end and rotates them on their axes at the same time. Patented counter-weight principle eliminates complicated gearing, worms and drive chains. Also suitable for cleaning interiors of containers. Belt or motor drive, ¼ or ½ h. p. motor depending on load . . . maximum load 250 lbs. per yoke.

Larger model (The Senior) handles two drums of 55 to 110 gal. capacity each. Same double action principle makes it ideal for cleaning "empties" or mixing contents of filled drums. Two 25 ft. lengths of special case-hardened cleaning chain furnished with each unit.

Full information on our smaller models for laboratory use will be sent promptly upon request.

Write for literature and details of trial offer.

The VOL-U-METER CO. *Inc.*

Engineers to the Liquid Handling Industry

VUM-41 717 OHIO ST., BUFFALO, N. Y.

Old Faithful Drum Cleaners and Agitators, Vol-U-Meter Drum Filling Device Drum & Barrel Inspection Lamps, Bruno E-Z Kleen Can & Bottle Filling Machines

What Tests Revealed About Sandblasting

Describing severe tests made with salt water on finished metal articles, two of which have been cleaned by sandblasting before being finished

By Wm. J. Hartung

IN THE manufacture of military instruments such as range finders, telescopes, gunsights, etc., the durability of the final finish ranks next in importance to the absolute reliability of the optical qualities. These instruments must not only stand up well under the influence of outdoor conditions and exposure, but their surfaces must resist the destructive action of saltwater. It is this last demanded property that calls for all precautions available in order to accomplish the ultimate objective.

To learn something specific about the proper preparation of the metal surfaces, I have in mind an instance wherein four test articles were chosen, all of them being steel tubing such as that which serves as mountings for optical combinations. The surfaces of articles No. 1 and 2 were treated according to a well known rust-proofing formula, without being sandblasted. The surfaces of articles No. 3 and 4 were sandblasted. All four test articles were then treated alike with a primer coating, this being a long-oil baking primer, followed by several coats of the best finishing material known in the market—two different makes being used. These four sections of optical tubing, finished as outlined, were given an accelerated corrosion test.

The tubes were placed on a rack of cloth-covered wires stretched across the top of an empty barrel. A distance of 36-in. above the samples there was placed a tank having an outlet at its base; this outlet terminated in four ¼-in. glass delivery tubes, each tube ending 24-in. vertically above a metal tube under the test. Each delivery tube was provided with an individual stop cock. The tank was filled with a 3% salt solution.

The entire apparatus was outdoors but in such a location as to be fairly well protected from wind, yet open to direct sunlight for several hours each day. The salt water was permitted to drop from the glass tubes onto the test pieces below with a free fall of 24-in., this producing a considerable impact.

At eight o'clock each morning the stream was adjusted to approximately 250 drops per minute, but due to the collection of salt at the mouths of the tubes this decreased to approximately 20 drops per minute by 8 A.M. the following morning. This treatment was maintained continuously except on those days on which the flow was purposely stopped and the tubes under test were permitted to dry.

This test was conducted for 30 days, during the month of March, when the weather was changing constantly from bright sunlight to cloudiness, and rain—lots of rain.

ADVERTISING PAGES REMOVED

The following observations and results are significant:

Fourth day: No. 1 showed indications of rust along 50% of the two upper edges. No. 2 showed light brown stains at impact point. No. 3, dark brown stain at impact point. No. 4, dark gray stain at impact point.

Sixth day: No. 1, two light rust spots. No. 2, dark brown stain all over upper face.

Eighth day: No. 1, badly corroded.

Fourteenth day: No. 1 and No. 2, badly corroded and peeling; both specimens were removed from test.

Sixteenth day: No. 4, five small blisters in one spot near edge.

Nineteenth day: No. 4, blisters broken and badly rusted; removed from test. No. 3, three faint blisters.

Twenty-sixth day: No. 3, one small blister broken but no rust showing.

Twenty-ninth day: No. 3, two large rust spots, many blisters; removed from test.

This exhaustive test, I believe, proves beyond the slightest doubt the value of the sandblasting operation; not only is it superior to any other method of producing chemical cleanliness on a metal surface, but also the metal treated in this manner presents the best anchorage and adhesive surface suitable to a baked japan or enamel finish.

Graining Bake Finished

Grain finishing systems are, as a general rule, applied on metal but in some cases they are applied on woods which have a poor grain.

The general system for metal is as follows:

A combination baked graining

The Blue Knight's Column

I SUPPOSE we all get surprised occasionally at the notions other people get of us. I certainly was surprised recently when somebody said: "We know you're good on metals, but we've got a different finishing problem!"

And here I've been sending out announcements about the work of my Research Laboratory, including new developments as separate and distinct as a Flexible Lacquer for RUBBER; a Flexible Enamel for TEXTILES; Lakastik, a special wood cement that won't spot; a Flexible Finish for Cork and Tile flooring; a special Deep Finish Wood Lacquer for Mahogany . . . as well as several important metal finishes. Indeed, one of the largest glass houses in the country recommends a ROXALIN Lacquer to its customers for use on its products, even though it doesn't use any Lacquer itself.

If you have a finishing problem NOW, let's discuss it and find out what recommendations I can make. In the meantime, send for the Research Bulletins listed below. They are complete, concise descriptions of various finishes developed by my laboratories, and available to all lacquer users.

ROXALIN FLEXIBLE LACQUER COMPANY, INC.

105-109 Seventh Avenue, Long Island City, N. Y.

- ☐ No. 21—About Flexible Lacquers for Brass, Aluminum and Nickel Silver.
- ☐ No. 23—About the one coat color backgrounding of etched name plates.
- ☐ No. 24—About Wood cement for Lacquer finished furniture.
- ☐ No. 26—About a Non-Jellying Bronzing Lacquer.
- ☐ No. 27—About a Tarnish-Proof Lacquer for Silver and Brass.
- ☐ No. AB—About a Flexible Finish for Cork and Tile Flooring.
- ☐ No. 28—About a rough texture finish (ROXITE) for wood, metal, glass, etc.

What does the FINISH *tell* about *your* Product?

On the retail sales floor - finish is an indication of quality that the customer recognizes. To her it is an index of the structural worth she may expect to find beneath the surface.

Considered from this standpoint finish is of utmost importance, - and one which has led so many makers of fine furniture to standardize on J-W-F products.

J-W-F finishing supplies are modern - scientifically designed to produce quality results under the pressure of volume production. It will repay you many times to investigate their qualities - to test them in your finishing room under actual working conditions. Then you can begin to realize the real possibilities of J-W-F products.

If you have some special finish problem - put it up to our research department - it's always at your command.

Jamestown Wood Finishing Co. products are guaranteed. If they will not do for you what we claim for them your money will be refunded.

Stains — Fillers — Shellacs
Varnishes — Lacquers — Enamels

Jamestown Wood Finishing Company

MAIN OFFICE AND FACTORY
Jamestown - - New York

BRANCHES

Bristol, Conn. Lenoir, N. C.
Milwaukee, Wis. New York City

ground and primer. A baking graining-stain and two or three coats of baking varnish or lacquer clear. Where the finish is applied on wood, the ground and graining ground coats are not baked, but are allowed to dry from 24 to 48 hours. The varnish is allowed to dry about 24 hours between coats.

The above is only a general way of applying the finish. Next I will endeavor to outline some of the definite graining systems.

In all cases the metal should be chemically clean. Parkerizing or Bonderizing is a good chemically clean base to start with.

The High Bake System

The graining grounds for this work are baked for one hour at 275°F. They must be ground very fine, must have good hiding power, must flow well, and should have a flat sheen. After the ground coat is baked, it is lightly scuffed with fine sandpaper.

Next we apply our graining stain. This comes in paste form and is generally reduced with approximately two parts of boiled linseed oil and four parts of turpentine to one part of paste. This stain remains workable for a long time. In some cases japan dryer is added to hasten the drying. The baking time is the same as the ground coat.

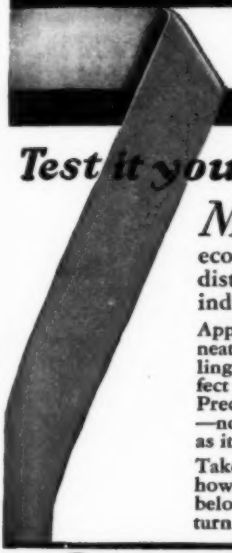
The clear coats that follow may be either lacquer or varnish. When varnish is used it is baked for about one hour at 275°F. The varnish must be print-proof, hard and should have a good flow. Air-drying varnishes also may be used, allowing them to dry 24 hours between coats and from 48 to 72 hours before rubbing.

When using lacquer allow two hours between coats and overnight drying before rubbing.

JONFLEX

[Industrial Tape]

The Masking Tape with Precision Edge



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The Low Bake System

The ground coats for this system may be baked for one hour at 175°F. to 200°F., or air dried for 24 hours. The same drying time applied to the graining stain.

A low bake varnish, baking at 180°F. for two hours, may be used or a 24 hour air dry. When PX is used the same applies here as with the high-bake system.

In both of the above systems a resin varnish may be used, which dries from four to six hours by air drying and in one hour at 200°F.

The graining stains are applied either by the hand method of graining or by the plate and roller method. All the graining stains previously mentioned were of the hand applied type. The inks used on the plate are made especially for this purpose, are not reduced, and are long in oil in order not to gum up the roller or the plate.

Sometimes we come across the lacquer lifting and crawling in the two above mentioned systems. This is all due to insufficient drying. We also get into trouble when it is a little over baked because the finish becomes brittle. —J. M. Verderosa.

Worthington's New West Coast Sales and Service Organization

The Worthington Pump and Machinery Corp., 2 Park Ave., New York City, announces:

"On and after January 2, 1930, the interests of this Corporation in the California territory will be served through a local company, The Worthington Machinery Corp., of California, Ltd., with headquarters at Los Angeles and San Francisco. The new organization will take over the sales and engineering staff and the warehouse facilities of the Worthington Co., Inc., in California, and will hereafter handle all that territory."

A Mahon Standard Unit Drying Oven installed over a conveyor line in a large automobile body plant.

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THE AUBURN FINISH

Production Superintendent of the Auburn Automobile Co. outlines production methods and illustrates equipment employed in cleaning and drying metal surfaces, spray finishing, drying and baking finish coats and mechanically handling Auburn automobiles

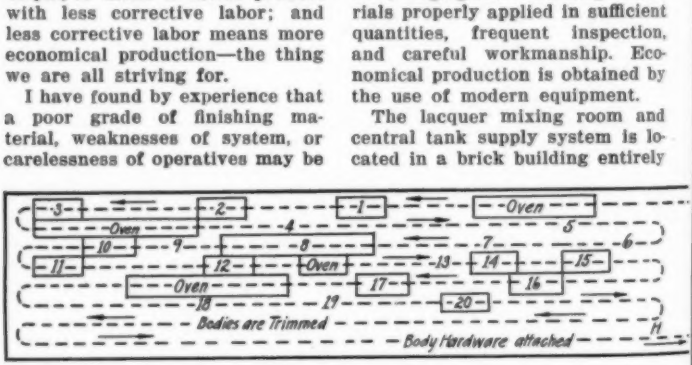
By C. E. Hilkey

NATURALLY I view this, and in fact all other industries, from a production angle. As I see it there are two basic elements that enter into the manufacture of automobiles—men and materials. It is possible for the manufacturer to control both. From cotter pins to lacquer, the very highest grade of materials are the most economical when the final analysis is made. The same thing applies to the men employed in the building and finishing of motor cars. Trained employes mean a better product with less corrective labor; and less corrective labor means more economical production—the thing we are all striving for.

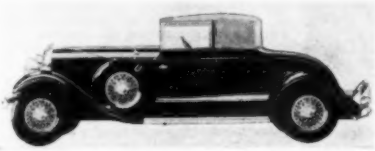
I have found by experience that a poor grade of finishing material, weaknesses of system, or carelessness of operatives may be individually or collectively the cause of finish failure. By finish failure I mean not only a defective finish in the plant, but a finish which will not prove durable with ordinary use and average care six months or a year after the car leaves the salesroom. That is the real test. We have striven to attain this goal and I believe I can say in all honesty that the Auburn Finish means *Original Beauty Plus Permanence.*

The formula is simple: A thoroughly clean surface for a foundation, high-grade finishing materials properly applied in sufficient quantities, frequent inspection, and careful workmanship. Economical production is obtained by the use of modern equipment.

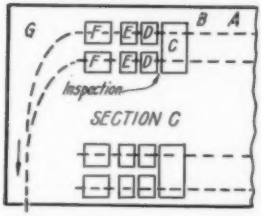
The lacquer mixing room and central tank supply system is located in a brick building entirely



Floor plan layout of Section D, wherein conveyor lines are indicated in dotted lines and the stations for the progressive operations appear numbered in sequence. 1, 2 and 3—1st, 2nd and 3rd surface coat spray; 4-5—where surface of body is sanded with fine sandpaper, using water; 6—inspection; 7—surface irregularities are retouched with putty; 8—body is thoroughly dried; 9—excess putty is removed; 10—1st ground coat lacquer spray; 11-12—1st and 2nd regular lacquer spray; 13—two-tone bodies are masked; 14—extra coat special spray; 15-16—1st and 2nd superstructure spray; 17—wheelbase and door jamb spray; 18—lacquer finish sanded with very fine sandpaper; 19—bodies are inspected; 20—a clear coat of lacquer sprayed on; H—final inspection.

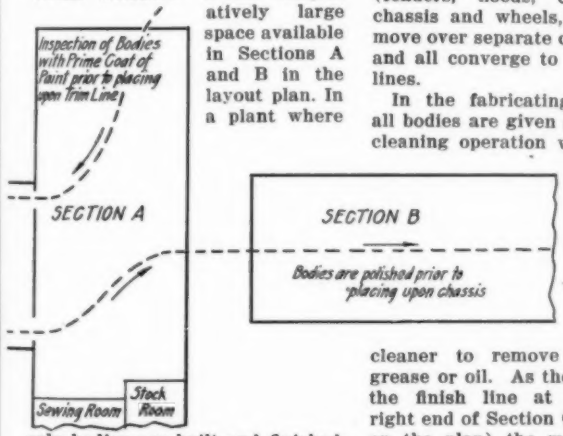


Floor plan layout of Section C, wherein conveyor lines are indicated in dotted lines and the stations for progressive operations are lettered A—sheet metal smoothing; B—inspection; C—cleaning; D—oven; E—prime coat sprayed on; F—oven; G—final inspection of bodies with prime coat.



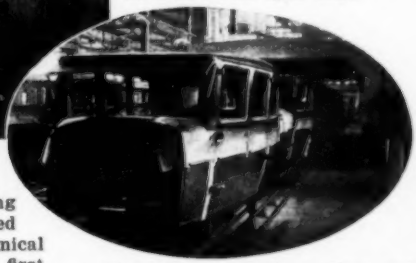
separate from the body-department finishing room and contains twelve 70-gallon colored lacquer tanks, one 70-gallon lacquer reducer tank (for mist spray), one 110-gallon pyroxylin surfacer tank and fourteen 15-gallon booster tanks. These booster tanks are mounted just in back of the larger tanks and are placed in service when the larger tanks are being filled.

All finishing operations are performed on bodies carried forward by a power conveyor. From the various illustrations accompanying this article, it may be seen what type spray booths, drying and baking ovens are used in this work. I want to call particular attention to the comparatively large space available in Sections A and B in the layout plan. In a plant where only bodies are built and finished this space would be unnecessary, but in a plant where complete automobiles are built, finished and assembled, this space is needed to synchronize production.


Inspection of Bodies with Prime Coat of Paint prior to placing upon Trim Line
SECTION A
SECTION B
Bodies are polished prior to placing upon chassis
Sewing Room
Stock Room

In both of these strategic areas, bodies may be placed on the line or removed so that the flow of bodies will coincide with the movement of sheet-metal parts (fenders, hoods, etc.) motors, chassis and wheels, all of which move over separate conveyor lines and all converge to the assembly lines.

In the fabricating department all bodies are given a preliminary cleaning operation with chemical cleaner to remove any excess grease or oil. As the body enters the finish line at the extreme right end of Section C (as marked on the plan) the metal surfaces are smoothed—using portable grinding wheels, hand files and



Left: In lacquer storage room No. 2. Notice the central tank supply system for body finishing department. On each tank there is a vertical row of petcocks at levels 10 gallons apart, for convenience in determining how much lacquer is in any one of the tanks.

In oval: Bodies which have received two double coats of colored lacquer on the lower body and are masked with paper and gummed tape, ready for work on the upper body.

emery cloth, followed by an inspection. At the station marked cleaning *(C)*, the bodies are brushed all over with a chemical cleaner which is followed first with a cold water wash to remove the chemical, and then a boiling water wash which facilitates drying.

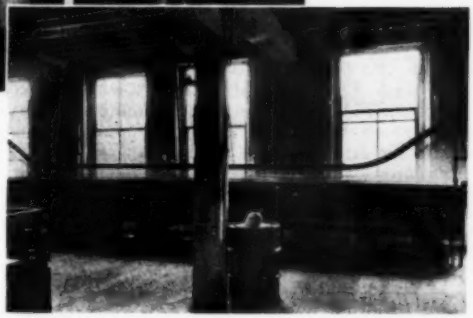
The bodies immediately enter a 30-ft. oven where they are thoroughly dried for ten minutes at 160°F. Leaving this oven they enter a spray booth where an oil primer is sprayed over the entire body surface outside and inside. Coating the metal surface inside prevents corrosion and rust. Bodies then enter a baking oven 70-ft. long where the prime coat is baked about 40 minutes at 200°F. After leaving this oven they are allowed to cool and air dry. Then follows a rigid inspection, a ding operation (removing slight depressions) and putty glaze over any rough spots, or where file marks are visible through the prime coat.

This brings us to Section A. I might add here that should it become necessary to remove a body from the line due to a slowing up of the motor, chassis or wheel line, this is not done until after the inspection, ding and putty glaze operations.

Bodies pass through an 80-ft. oven requiring about 45 minutes at a temperature of 160°F. to dry the putty; this forms a supplemental drying for the prime coat. As bodies emerge from this oven all putty glazed surfaces are dry sanded, using No. 150 sandpaper, followed by a tack-rag operation, then a dry brushing and finally blowing the job clean by air. Next follows three coats of pyroxylin surfacer applied in three separated spray booths, the bodies being air dried between each coat. On leaving the third surface coat spray, bodies enter an oven 100-ft. long where these surface coats are dried for 1¾ hours at 160°F.

After drying, the bodies are wet sanded. Groups of four men working together are employed in this work, using No. 240 sandpaper at the beginning of the operation and finishing with No. 320 sandpaper. These groups are held strictly accountable for any corrective labor on bodies rejected

KIRK & BLUM Industrial Finishing Equipment in Kodel Mfg. Co. Plant



Spray booth and pickling tank in the Kodel Electric & Mfg. Co. plant, furnished by Kirk & Blum Mfg. Co.

Speeds Production

An interesting and very efficient method of industrial finishing is employed by the Kodel Elec. & Mfg. Co. of Cincinnati. Planned and installed by Kirk & Blum Engineers, specially constructed spray booths and pickling tanks, now speed up the entire process of finishing metal parts, producing vastly improved finishing surfaces.
Typical Kirk & Blum equipment for the application and drying of finishing materials on a production basis, covers booths, ovens, conveyors and ventilators - industrial finishing systems adapted specifically to furniture, automotive and other industries; we also design and install special booths and handling equipment.
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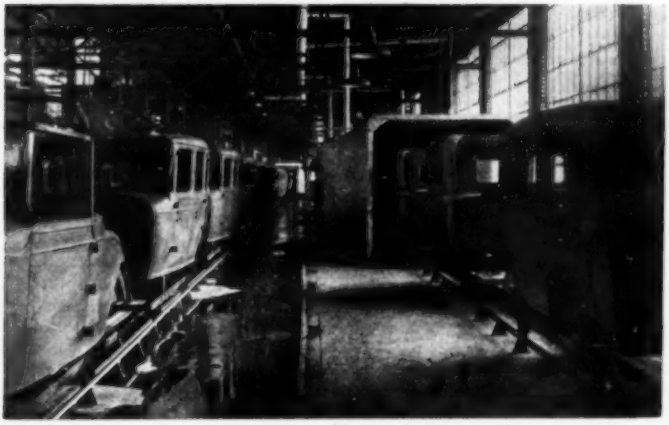
KIRK & BLUM
Industrial Finishing Equipment

in the inspection which immediately follows wet sanding. This plan makes for very efficient work on this major operation. Bodies are then blown dry by air and spot-putty glazed to cover any surface roughness that may be revealed by wet sanding.

The bodies then enter a 50-ft. oven where they are dried for 15 minutes at 140°F. After drying, the spots which were putty glazed are touched up with dry sandpaper, wiped, and blown clean with compressed air; then the bodies enter the spray booth where the ground coat of thin lacquer base is applied. This ground coat is allowed to air dry between this booth and the next spray booth where the first double coat of colored lacquer is applied to the lower body; then follows another air drying space, and the body enters a booth where the second double coat of colored lacquer is sprayed on the lower body. By "double coat," I mean the operator sprays horizontally and follows immediately with a vertical spraying. Bodies then enter 40-ft. oven where lacquer coats are dried for 10 minutes at 160°F.

Following this drying, the lower body surfaces are masked, using paper and gummed tape for this purpose. Immediately following the masking station we have a special spray booth to take care of all odd color jobs, special jobs, and any bodies requiring a third color. The next regular operation is the spraying of a double coat of colored lacquer on the upper body, then a short air-drying period, and a second double coat of colored lacquer is sprayed on the upper body.

The paper masking and tape is then removed and the bodies enter a booth where the wheel housings and door jambs are given a heavy coat of colored lacquer. Following this, bodies pass through an oven 100-ft. long, where all of the lacquer coats are thoroughly dried for 30 minutes at 175°F.



View in Section D. Conveyor line at left takes bodies over the wet sanding deck, following the oven-drying of three surfacer coats. At right, bodies are entering the oven where putty glaze is dried.

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The next operation after the bodies have slightly cooled is wet sanding using No. 320 sandpaper, the operation being performed by groups of four men working on each body. After a thorough washing with water to remove any loose particles, the job is blown dry with air and inspected. Any corrective labor which may be necessary is performed at this time and any bare spots caused by sanding are spot sprayed (in the open), allowed to air dry, and then the bodies enter the booth where a mist spray of lac-

Finished bodies on line to be dropped onto chassis. Entrance to Section B as shown in floor plan layout.

quer reducer is applied to the entire outer body surface.

The purpose of this mist spray is to bond the lacquer coats and produce a high-gloss finish. This reducer coat is allowed sufficient time to air dry, after which the bodies enter the trim lines where they are trimmed and the hardware is attached. It might be interesting to know that the trim lines complete a power conveyor system 3,400-ft. in length.

Then follows a final finish inspection before the bodies are conveyed up and over a bridge to Section B where they are hand polished, using pumice and polishing compound. Another inspection follows and any touching-up necessary is done at this time. Then the hand stripers perform their work on all curved mouldings and close places; this is followed by machine striping on all straight moulding runs.

At the extreme right end of Section B, bodies are switched over from the main conveyor line to a special elevator, as it will be remembered that the polishing and striping floor is located on a balcony or ramp. Immediately below this ramp the chassis, motor, wheel and sheet-metal conveyor lines converge into the assembly lines. Of course, these lines are so arranged that the various parts enter the assembly line at the proper place. As the chassis with wheels mounted and motor set passes under the special elevator, the body is lowered into place on the chassis.

Editor's Note: This is the first of two articles by Mr. Hilkey. In the second, which will appear next month, he outlines the finishing operations on wheels and sheet-metal parts such as hoods and fenders.

Style is a changing and elusive thing, subtle and hard to isolate.

Geo. E. Watson Co's Spring Catalog

Geo. E. Watson Co., (painters' and finishers' supplies) 164 W. Lake St., Chicago, Ill., is now mailing the "Bulletin for Spring of 1930." This catalog contains 32 pages, size 6¾ x 7-in. and profusely illustrates the complete Watson line.

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Walker Service with Walker Lacquers

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Steamship Artistically Decorated

The steamship *Paris*, reconditioned at an expense of $1,000,000 after the fire five months ago, arrived recently in New York. The keynote of the artistic remodeling is chiefly in the treatment and disposition of fine and rare woods. This is an artistic craftsmanship feature in which France takes great pride, and some of the finest workmanship and the rarest woods have been incorporated in this leading passenger steamer of the French line. Light woods predominate and these, in contrast with dark bronze and red, enter into the decorative scheme throughout the steamship. Maurice Tillier, general director of the French line, stated that he thought comfort and luxury, rather than lower rates, were more in demand by the public today.—B.C.

A Production Short-cut; New Permanent Stains

Recently, I have been using a new permanent wood stain that has been developed from material formerly dissolved in water to make water stain, but which is now dissolved in solvents that do not raise the surface grain or cause the wood to swell. This new stain is remarkable for its qualities of beauty and permanency. Wood surfaces stained with it require no sanding afterward. It doesn't "bring up" smoothed-over hidden dents or bruises, doesn't cause veneer to blister and doesn't "bring out prominently" the glue lines of veneered faces that have been put up with vegetable glue.

After this new stain has been applied, it dries rapidly and

thoroughly and it stains uniformly all over the surface. We now fill our woods in less than 30 minutes after applying the permanent stain, without any operation of sanding between stain and filler. As a matter of fact, the use of this new stain has eliminated many previous troubles in our finishing department and it has speeded up production.—Phillip Myers.

Finishing Material Containers Agitators

Expert investigation of poor finish in one great motor manufacturing plant proved that the finest quality of purchased material was being "butchered" because it arrived in any old kind of container—drums totally devoid of any means of complete out-turn except wrestling and shaking them by hand, or in drums and barrels equipped with inadequate agitators.

After thorough tests, the order went out from the management of that plant to accept deliveries of finishing materials only in drums that would admit suitable agitators which are really effective for stirring up all the bottom contents of the drum.—C. E. F.

Finishing Knotty Places

To prepare knotty surfaces that are to get a dark finish, a glue size can be used where the surface is free from resinous matter; but when resin is present, and water stain will not "take," sponge the places with several coats of from ½ to one percent potash solution. Sponge this off with clean water. If the stain still fails to "take," sponge again with several coats of alcohol.—E. B. S.

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This background is a photographic reproduction of M & W Crystal Lacquer

QUESTIONS AND ANSWERS

This service department is conducted to meet the reader's need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer comments, suggestions or answers

Colors Identify Contents of Piping

We understand there is a tendency among those in charge of industrial plants to have pipe lines painted in certain colors which will immediately identify what is inside the piping—whether compressed air, electric wiring, hot water, cold water, gas, finishing material, etc. If certain colors are used to identify certain contents, what are they?—L. C. Co.

While some effort has been made towards standardizing colors for this work, so far as I can learn there are no set rules at the present time in their selection. I have talked with erecting engineers for local plants who travel all over this country, Canada, Mexico and South America, and have also visited one of the plants located in Oswego, N. Y., and have included the color plan of that plant.

In talking with Mr. James H. Taylor, an erecting engineer of many years standing, he told me that the general practice is to use green or red on water lines and light colors, such as orange or cream color, on steam lines—and that only last week he was in a large plant in Joliet, Ill., where these colors were being used at that time, stating that this particular water line was in green, sprinkler system in brown and the steam line in cream.—A. J. Owen.

Spraying Lacquer For Jewelry

We are starting into the spray lacquering business and we intend to do this on a large scale for the jewelry trade; we will appreciate any information you can give us. —J.&R.C.

In regard to installing spray equipment, the advice of the engineers of any of several prominent spray-equipment manufacturers should be invited. These manufacturers will gladly send a competent representative to your plant to recommend the best that is available for the purpose, and the representative will supervise the installation of same.

Not until after the spray system is in successful operation should the matter of special automatic devices for continuous performance be approached, as an intimate study of the peculiarities of the work or parts is essential; however, by employing such devices an unlimited output is assured.

During the war this became an absolute necessity, and I have used many of these time-saving devices; which we constructed in our own factory. The nature and shape of the work leaves open a

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Water Stain—

requires ***no sanding . . . . . no wash coat*** . . . . saves 24 hours in the finishing room. One furniture manufacturer saves $1.50 on every dining room suite.

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Write for a sample gallon. See how it improves the appearance of your work. If you use other finishing products ask for samples and prices. We make a full line. Write to *Dept. F-2, North Bergen Varnish Corporation, 991 39th St., North Bergen, N. J.*

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wide field for the ingenuity and imagination of the man in charge. —W. J. Hartung.

Uniforming Walnut and Birdseye Maple

I would like some information on getting and keeping a uniform color on walnut, birdseye maple, African walnut, etc., in a production shop making medium-priced furniture.—O.H.S.

Getting and keeping a uniform color on the different woods used in the manufacture of furniture today has been a bone of contention between the sales department and the finishing room for quite a long time. To begin with, every veneer log contains from two to six grades of veneer, different in color, figure and texture. Suppose the factory receives a shipment of walnut veneer. Probably the veneer buyer selected this veneer to the best of his ability, to match the color and grade the factory had been using, but he bought veneer that was cut from several different trees.

Now here is what happens: The veneer is placed in the store room where it is either piled up according to grade, or with each flitch or log to itself. Next, the veneer foreman gets an order, we'll say, to cut 100 bedroom suites. He starts out by cutting the veneer for all the beds, taking the best part of the log. Next probably he will cut the dresser drawer fronts and so on down the line; as he goes deeper into the log the veneer is changing so fast in color and figure that the last pieces cut look so different from the first that it doesn't seem possible they came from the same log.

So much for cutting veneers from the same log, but suppose there is not enough good veneer for the cutting in one log; the veneer man takes veneers from another flitch, which may be out of a different tree, and no matter how near it looks like the other, the contrast will be still greater.

Then, after the different pieces of the suite are made up and sent to the finishing room, you will find one piece with a beautiful figure and color, another with less figure and lighter in color, and still another with no figure and a lot of sap between the dark wood; yet all the pieces must match in color. What is the finisher to do with all this staring him in the face?

I have found the following method the best, and I believe I have tried them all. In the case of walnut, if you are staining, use a water stain because it is fast to light and will never fade. After staining, put on a size coat of shellac; when dry, sand and fill. When the filler is dry, even up the sap and light parts with a lacquer glaze applied by spraying. If you want a shaded or highlighted finish, you can do this with the same glaze and at the same time.

If you are making light or French walnut finish, the first thing to put on the wood is the size coat. If you desire a very light finish use bleaching lacquer; if not so light, use shellac and fill with a transparent filler. Then proceed as above, that is, even up the wood with lacquer glaze and then proceed with the balance of the finish—either lacquer or varnish.

The above procedure will uniform the walnut and keep it that way and should work well in production, as it does away with a lot

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Perfectly balanced, non-tiring, strong, serviceable AND light in weight, (2 lbs.).

A real find for the finishing room!

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Soft, uniform spray of lacquers, that leaves a beautiful finish.

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New type—ultra modern "Air Exit" Ventilating and Drying Fan .... 2 to 6 blades

Aeroplane Propeller fan blades are universally recognized as the most efficient and economical . . . and the blade which our engineers have designed and developed (constructed of Nickel Alloy Aluminum) is practically perfect in these respects.

Note exclusive motor bracket—gives better frame support and can be adjusted to fit any motor.

Write for price and descriptive circular. . . . you'll be surprised.

AIR-MORE PRODUCTS CORP.
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If you can write you can stripe with

The New Improved Reeves Striper

Anyone can use it! Just a little practice, and those difficult striping jobs can be handled better, faster and at less cost than if done by an experienced hand striper. Pays for itself in short time. Use the Reeves for striping on furniture, auto bodies, etc. Write for literature and sample striping.

Priced $10.00, complete with two barrels for narrow and wide stripes. Shipped C. O. D. or on receipt of your check. *Satisfaction Guaranteed.*

E. M. REEVES COMPANY
Flint, Mich.

of hand touching of saps and light places and you will be surprised how much better and neater you can do this with the spray.

In finishing birdseye maple, it depends on whether you are finishing in the old white birdseye or finishing in one of the many new colors that are being used on birdseye maple today. No one has ever been able to hold birdseye maple white for any length of time as "it all yellows up" with age—but most all the maple is now finished in different shades. Here again, I would say, use water stain and you should have very little trouble uniforming the wood, except in the gray shades; these are very delicate tints or shades, and the gray stains will not uniform the maple like other stains will.

The way I do is to bring the finishing job up to the first coat of varnish or lacquer; that shows me the different colors in the piece. Then I make an overtone, using sulphate of iron and jet black nigrosine in water, with a little alcohol to make it take hold. Apply with a soft rag, working with the grain over the parts that are off shade; then proceed with the finish, using light colored varnish or light colored lacquer. This may look like a lot of extra work for a production shop, but it is the only way you can get a uniform color on gray maple.

For all the other finishes, I suggest the lacquer shading stains, as these have been of remarkable help to the finishing room. Most manufacturers of wood finishing materials make several shades of this stain, and you can select the ones to suit your needs.—Frank Thiel.

Do not fear your competitor, study him.

ADVERTISING PAGES REMOVED

Our Experience With Silk Screen Stencils

I have just read the article in January issue of INDUSTRIAL FINISHING entitled, "Decorative Stenciling" by M. V. Leach, and feel prompted to make the following comments:

Screen stenciling with lacquer paste is thoroughly practical and there is no excuse for permitting "leaks" or pinholes to develop in the blocked-out part of the stencil, from cleaning the screen.

There are many ways of making screen stencils for screening lacquer; some finishers use the water color filler for blocking out. Then there are the sensitized or photographic stencils, and the knife-cut paper stencils fastened with glue. A mixture of shellac and castor oil colored with drop black can be used as a blocking-out material; also flexible glue, mixed very thin with water, can be used by flowing same over the screen. Any of these stencils can be cleaned thoroughly with lacquer thinner, benzine, or a mixture of turpentine and kerosene, or with clear kerosene.

So far as I know there is only one way of stenciling that will give clean, sharp work which is really equal to printed type, and that is with the screen stencil. I am working in a plant that manufactures glass display signs for national advertisers, and all our work is done with screen stencils. I believe there are no higher class signs than those made in this plant, and on request I will submit samples of our work. We think nothing of screening gold, copper and aluminum bronze, as well as paint on glass.

We also screen lacquer paste on wood and metal surfaces that have been painted and grained with

Everything for the finishing shop

WE CARRY complete lines of quality paints, varnishes, lacquers, brushes and all tools used in a modern finishing shop. Our prices are surprisingly low for the quality of merchandise sold. Our prompt shipments will save you time.

Color Brushes

Our No. 863 Camel Hair Color Brushes are made by an expert from selected gray butt, black tip hair, double thick, set in rubber.

Width	Length	Doz.	Each
½ in.	1 in.	$ 3.00	$0.30
1 in.	1-½ in.	4.50	.40
1-½ in.	1-¼ in.	7.05	.70
2 in.	1-⅜ in.	10.27	1.00
2-½ in.	1-½ in.	13.87	1.35
3 in.	1-⅝ in.	17.85	1.75
3-½ in.	1-¾ in.	22.12	2.20
4 in.	1-⅞ in.	26.85	2.65

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"The Paint People"

164 W. Lake Street Chicago, Ill.

Please send me your new catalog on painters' supplies.

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IF 2-Gray

Make-up . . .

THEY'RE still throwing vegetables and rotten eggs at "ham" actors . . . . . but Make-up and a good finish will put things over . . . . . over the counter as well as over the footlights!

ALAKA, the practical lacquer, gives a smooth, tough finish that takes hard knocks and stays "as was." Write for a copy of our booklet, "Finishing Facts."

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We carry all shades of bronze powders for spraying, burnishing and striping.
Samples and prices submitted upon request
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CHICAGO

oil color, by using an insulator mixture to cover the lacquered surface before screening. Oil-color screen paste is also successfully applied through the screen and onto lacquered surfaces; when thoroughly dry, the surface can be sprayed with clear lacquer, giving the entire job the appearance of a lacquer affair throughout.

We have any number of clean-ups with our screens (cleaning the screens repeatedly) and experience no trouble with "pin holes" or "leaks" when the proper stencil is used with the proper paste.

Lacquer screen filler will not work with lacquer paste, as the paste will dissolve the screen filler. Knife-cut paper stencils cannot be fastened with shellac when one is screening lacquer. Lacquer dissolves the shellac. Most any kind of a screen filler can be used for stenciling with oil colors; if the screen is cleaned with benzine or kerosene, no pinholes will appear.

My firm often gets into competition with photographed signs and I am glad to say that the old screen process has come through with colors flying. One certainly must know his paste to screen successfully. There are quite a few things to be considered; the preparation of the surface, if on cardboard or paper, etc. A paste that is too stiff and choppy is not good for hard, non-porous surfaces, like glass, metal or varnished surfaces.

One more word in regard to cleaning screens. We have screens on hand that are two and three years old, being held for repeat orders. These screens are knife-cut paper stencils, fastened with shellac, and have been cleaned with kerosene as often as a dozen times.—Harry L. Hill.

Hobart Spray Outfit

(Continued from page 59)

Compressor: 500-r.p.m.; 2 cylinders air cooled; bore 2½-in.; stroke 1¾-in.; displacement 5-cu. ft. per minute; continuous working pressure 30-lbs.; maximum working pressure 50-lbs; connections of seamless copper tubing; controlled splash lubrications.

Transmission: Automobile type with spiral bevel ring gear on crankshaft and pinion gear on end of ball-bearing motor shaft. Take-up is provided through an end-thrust adjustment of the crank bearings.

Storage tank: Capacity 4½-gallons. Made of heavy gauge steel pipe 8-in. in diameter and 20-in long, with heads electrically welded and thoroughly tested at high pressure. Two heavy duty, rubber-tired wheels mounted on axle at one end, and one with swivel mounting at other end. Two substantial handles electrically welded to tank, one at each end for convenience in carrying.

Fittings included safety valve, one regulating and two auxiliary unloading valves, oil-and-moisture drain, accurate pressure gauge, visible oil level gauge, toggle-joint switch, 25-ft. rubber-covered electric cable with plug, and petcock at air outlet connection.

Spraying equipment includes one spray gun, one 20-oz. metal pressure-feed cup, one air-adjusting valve, one cleaning brush and 25-ft. of ¼-in. air hose with fittings.

The HB No. 136 in service.

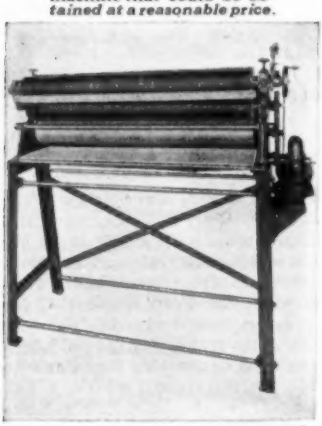
Deadener Is Sprayed Tank from Which Body

The Paasche Airbrush Co., 1921 Diversey Parkway, Chicago, Ill., announces as an addition to its line a 200-gallon air-agitated tank developed for use at the Rouge plant of the Ford Motor Co., for spraying Inco body deadener inside the metal bodies to damp vibration or rumble. The Paasche F539 tank is mounted on a balcony above the body line and has a 3-in. pipe at the base that branches to each side of the body line. The 200-gallon tank has a 25-in. cover so that the deadening material can be hoisted and dumped therein directly from barrels; three 55-gallon barrels are dumped into the tank before beginning operations. A 1¼-in. "gasoline hose" is connected by a ¾-in. reducer to the special Type UUE air gun, which has a ⅜-in. nozzle.

According to information supplied by the manufacturer, the deadening material is sprayed on the interior of the body after it has been painted and all dings have been eliminated, because it is impractical to "ding" a body after the inside has a ¼-in. coat of sticky deadening material.

The NAZ-DAR Coating Machine

—the answer to a long felt need for a practical coating machine that could be obtained at a reasonable price.



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Decrease COSTS!

Uniformly coats oil paints, enamels, varnishes, lacquers, etc., on practically any surface—process, news, chip, card or wall board . . . tin, metal, wood, glass and similar sheet materials at great speed.

Of simple but sturdy design; quick adjustments; unique automatic fountain feed; interchangeable rollers; requires no special wiring; quiet in operation; easy to clean; portable.

Write today for price—and fully illustrated circular.

NAZ-DAR COMPANY

Manufacturers of Silk Screen Process Paste Paints, Equipment and Supplies

4014-22 N. Rockwell St. Chicago, U.S.A.

After the body is sprayed with deadener, it continues along the line and is upholstered and assembled on the chassis in the regular manner.

It is not necessary to spray the entire inside area with deadener; the operator endeavors to keep this material away from the outside corners, door fixtures, etc., in order that the latter may be operated.

Paasche F539 200-gallon air-agitated tank.

The Inco body deadener consists mainly of asphaltum heavily loaded with oils which protect the metal; in addition to these hydrocarbons, there is in the mixture a great deal of sawdust. When applied to the interior of the body, this material becomes tacky in a few minutes, but never gets really hard. The full deadening effect is not obtained until 24 hours after application.

Agitator and Tilt-Skid for Paint Drum

The C. E. Farrington Co., Phoenixville, Pa., announces two devices which are useful in all

ADVERTISING PAGES REMOVED

establishments that obtain finishing materials in shipping drums—an agitator for stirring and loosening the settled material in the bottom of the container, and a tilt-skid which is useful and convenient in handling filled or partly filled drums. In reference to Fig. 1, which shows part of a drum broken away to reveal an agitator in position, Mr. Farrington says:

"Any load of standard paint can thus be loosened by hand power and brought to laboratory mix in 15 minutes. After starting loads

Fig. 1—Drum with agitator in position.

by hand, the mixing may be continued by small air motors which have been developed for this work, or the entire stirring can be done by hand. The safe rule for such hand stirring is 15 minutes at the start of the day and then 100 turns of the handle with every draw-off during a day of continuous work To encourage conscientious stirring, these stirrer bars are equipped with swivel-grip handles.

How this Plant Increased Production 400%

One of the spray booths in the factory of the Flores Yo-Yo Corp., Los Angeles.

The Flores Yo-Yo Corporation, toy manufacturers with nation wide distribution, doubled, tripled, and then QUADRUPLED production with CROWN SPRAY PAINTING EQUIPMENT.

"Although we had Crown equipment installed only six months ago, we have increased production 400% over the old method of hand finishing. Needless to say, we are more than satisfied. The excellent results, the simplicity and ease of operation of CROWN EQUIPMENT make it highly profitable from the standpoint of manufacturing costs."
(Signed)

Sturdy in construction, efficient in operation, CROWN SPRAY PAINTING EQUIPMENT is engineered to make extra profits in the finishing department.

Write us for descriptive literature.

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CADILLAC SHELLAC

IS PURE SHELLAC of the ***highest quality,*** both White and Orange, carefully cut in Formula One, 190° Denatured Alcohol, and with ***all*** dirt and foreign matter ***absolutely removed,*** and **GUARANTEED PURE** and **FULL WEIGHT** by the Manufacturers.

CADILLAC SHELLAC COMPANY
INC.
Ferndale (Detroit) Mich.

STABILISAL "A"
Stabilizing Bronze Lacquers

STABILISAL "A" is a material that has been used for several years in Europe as an addition to nitrocellulose bronze lacquers, to prevent their jellying and to minimize the tarnishing of the metallic bronze powder in the dried lacquer film. Polished metal surfaces, protected by a clear metal lacquer containing very small amounts of Stabilisal "A", will not tarnish.

The principal advantages in its use are the elimination of waste of lacquer due to jellying and thickening before using as well as an increased durability of the resulting finish.

Samples and literature upon request.

KUTTROFF, PICKHARDT & CO., Inc.
1150 Broadway New York

"In stirring by motor, care should be taken that not a great deal more be done than by hand, as power is wasted and continuous centrifuging is detrimental to many finishing materials, causing them to separate like cream from milk.

"A specially patented feature of the above device is the chime cleaning dangler which, either hand or machine driven, delivers all the pigment (sometimes essential tints) that would otherwise be wasted in the chimes."

Fig. 2—A drum mounted in the tilt-skid.

Referring to Fig. 2, which shows a drum in upright position in the tilt-skid, Mr. Farrington says:

"Another obstacle to the economy of such bulk handling has been the difficulty of lifting drums into vertical position for such stirring. Most finishers are not heavyweight lifters.

"To meet this need the 'tilt-skid' pictured here has been developed so that a 16-year old boy can set up an 800-lb drum. Two men easily manipulate an 1,100-lb. drum. These skids are also built high enough, on special request, so drums or barrels can be drawn off directly into containers for spray painting."

Industrial Finishing

Issued fifteenth of each month. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

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EDITORIAL

Will Show Trends of Industry

The Government's "Census of Manufacturers & Distribution" being undertaken this year will be completed in less time than formerly if proper co-operation is accorded those in charge of the work—and it is essential that it be completed and compiled as soon as possible in order that the vast amount of information it discloses will be truly current instead of historical. This information will be of inestimable value to the manufacturers of the country in working out their charts of business procedure.

From these complete census reports a manufacturer can draw up a chart by means of which he can compare his own results with those of the entire industry of which he is a part. For example, on the following points:

1—Total output, in detail, by quantities and dollars.

2—Number of wage-earners.

3—Ratio of cost of materials to value of output.

4—Number of employes per dollar of output.

Facts alone are of value in this intense competitive age—and, at little cost, industry is acquiring this comparative data.

For several years this census has been taken every two years. A typical deduction from past figures shows that while up to 1920 there was an increasing number of wage earners, during the succeeding 8 years there was an actual decrease of over 500,000 in our factories. On the other hand, horsepower in American factories increased from nearly 30,000,000 in 1913 to almost 40,000,000 in 1927. The average horsepower per worker has increased from 3 1/3 to 9, thus materially increasing output.

From the tremendous amount of information that becomes available, various deductions are obtainable which will be of vital importance to management in shaping plans and policies for the future, for example—What is unwise in business? What are the things which cannot be attempted safely? What are the trends and shiftings of the markets for manufactured commodities—both industrial and domestic? Where do dangers lurk? On the other hand, what constitutes sound practice? Through what methods may failure be transformed into success?

Radios in Greater Demand

The average retail sales of radio equipment during the third quarter of 1929, reported to the Commerce Department's Elec-

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trical Division by 6,237 dealers, was $3,450 or a total of $21,490,414. This represented an increase of 14% in average sales per dealer over the corresponding quarter of 1928, when the figure was $3,030.

The average number of A. C. sets sold per dealer increased 40% during the third quarter of 1929, as compared with the same period last year. The average value per set sold, however, showed a decline from $167 to $155. The sales of battery sets declined to one-third of what they were in the third quarter of 1928.

Train Industrial Finishers

During the past two years there has been much advocated and something actually accomplished in the way of apprentices in the paint industry; also in training Master Painters to sell themselves and their work; in training paint dealers in more up-to-date methods of selling; in training paint manufacturers' salesmen to give them a better and more efficient knowledge of their lines and their duties.

This is highly commendable, for anything that tends to uplift or improve any part of the paint industry must certainly benefit, to some degree, the entire industry. It may be taken for granted that these training courses will be avidly seized and advantage taken of them by those who are mentally alert enough to realize the significance of recent trends in the painting industry.

This movement is a vast stride in the right direction but it is unfortunate that among the divisions promulgated, that of industrial finishing was omitted. Naturally, industrial finishing embraces so many diverse factors, so many differences in products, materials and methods of applica-

tion, that it would be extremely difficult to formulate any distinctive program which could include each and every phase of this division of the paint industry.

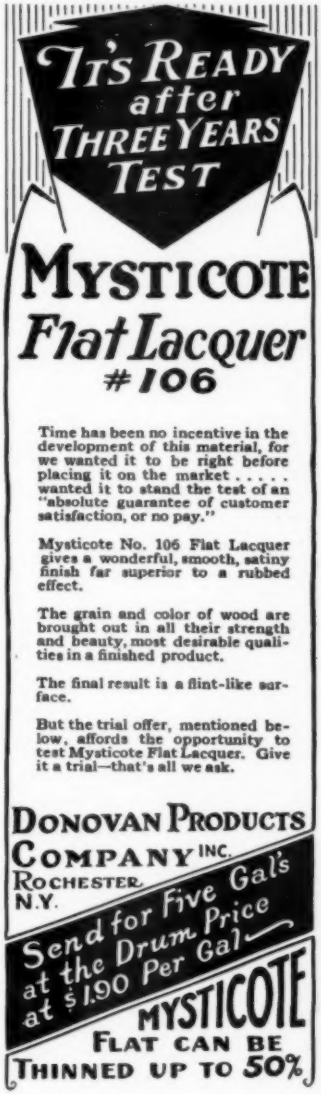
However, in the final analysis, the fundamentals of all industrial finishing are the same, regardless of what articles are to be finished, or what means of application or drying is employed. All materials are either oleoresinous or cellulose basically, so there need be no great variance in the fundamentals of such a course.

Naturally there would be a tremendous amount of work involved in detailing and formulating such an educational course, but when all non-essentials had been weeded out, there would remain a solid foundation of inestimable value to the industrial finishing division of industry.

Insist on Clean Benches

There are several reasons why the finishing foreman should instruct and insist that employes who have work benches on which they have the many materials which they use keep the same in an orderly condition. In the first place, it will save the man many minutes each day—minutes which would otherwise be spent in looking for some article he wants to use. It is difficult to find what is wanted on a cluttered up work bench.

Again, many times cups of shellac, touch-up or stain are spilled, causing work to be spoiled, and extra time is required to clean it up. A neat appearing work bench is a good indication of a careful, skillful workman, while a work bench cluttered or kept in disorderly condition has the earmarks of waste and indifference to good work.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Mysticote No. 106 Flat Lacquer gives a wonderful, smooth, satiny finish far superior to a rubbed effect.
The grain and color of wood are brought out in all their strength and beauty, most desirable qualities in a finished product.
The final result is a flint-like surface.
But the trial offer, mentioned below, affords the opportunity to test Mysticote Flat Lacquer. Give it a trial—that's all we ask.
DONOVAN PRODUCTS COMPANY INC.
ROCHESTER, N.Y.
Send for Five Gal's at the Drum Price at $1.90 Per Gal.
MYSTICOTE
FLAT CAN BE THINNED UP TO 50%

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This inquiry is addressed to one of the few men in the industry qualified for the position: A large, old-established house wants a LACQUER EXECUTIVE, one grounded in lacquer chemistry and thoroughly acquainted with and experienced as to the varied requirements of the entire industry and who can formulate both clear and pigmented lacquers to satisfactorily meet those needs.

No ordinary lacquer chemists wanted—the job calls for a big man with a record of accomplishment.

Applications treated in confidence by both parties.

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WANTED TO BUY

Dirty organic solvents and cleaners. If you are not saving solvents at present it will pay you to save. Please send samples and state quantities. MASTER-CRAFT PRODUCTS CO., 623 Briar Place, Chicago, Ill.

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A large, well-established manufacturer of a complete line of industrial finishes, of the highest standing, with factories located in the central states, has an exceptional opportunity for a live-wire successful salesman, thoroughly familiar with the sale and application of paint, varnish and lacquer finishes for furniture—to locate in Grand Rapids and sell the furniture and industrial trade in surrounding Michigan territory. Give full particulars as to age, experience and salary expected in first letter. Our own salesmen know of this ad. Address IF—316, care Industrial Finishing.